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Edited by

Richard J. Grunawalt, John E. King and Ronald S. McClain

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IN MEMORIAM

This book is dedicated to the memory of Dr. John H. McNeill - patriot, scholar, counselor, and friend.

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FOREWORD

The International Law Studies "Blue Book" series was initiated by the Naval War College in 1901 to publish essays, treatises and articles that contribute to the broader understanding of international law. This, the sixty-ninth volume of the series, consists of papers written for and presented at a recent Naval War College Symposium on the Law of Naval Warfare: The Protection of the Environment During Armed Conflict and Other Military Operations, and includes the proceedings of that Symposium.

Participants in the Symposium represented a broad range of expertise in the increasingly important field of environmental protection during armed conflict and other military operations. Included were government officials, operational commanders, environmental scientists, international law scholars, military and civilian lawyers and environmental advocates. Representatives from Argentina, Australia, Canada, Germany, the Netherlands, Switzerland, the United Kingdom and the United States contributed to the Symposium and to this volume. The result is a thorough and well-balanced discussion of the compelling necessity to protect the natural environment, to the fullest extent possible, from the ravages of war and other military operations, and of the adequacy of existing international law to accomplish that purpose. While the opinions expressed in this volume are those of the individual participants and not necessarily those of the United States Navy or the Naval War College, they collectively provide a valuable contribution to the study and development of the law of naval warfare. On behalf of the Secretary of the Navy, the Chief of Naval Operations and the Commandant of the Marine Corps, I extend to the editors and the contributing authors of this informative and provocative work our gratitude and thanks. I also extend our special thanks to the Honorable Walter B. Slocombe, Under Secretary of Defense for Policy, for providing the means to allow the Naval War College to conduct the Symposium and to publish this volume.

JAMES R. STARK
Rear Admiral, U.S. Navy
President, Naval War College

PREFACE

In September 1995, the Naval War College, with the encouragement and support of the Under Secretary of Defense for Policy, hosted a Law of Naval Warfare Symposium on The Protection of the Environment During Armed Conflict and Other Military Operations. This volume comprises the proceedings and the papers of that Symposium.

International outrage at the environmental depredations visited upon Kuwait and upon the waters of the Persian Gulf during the Gulf War drew renewed attention to the ongoing debate among environmentalists, scientists, lawyers, policy-makers and military officials over the adequacy of international law designed to protect our natural heritage. This subject rapidly became a source of sharp controversy as those who advocated a stronger role for environmental protection measures during armed conflict were challenged to acknowledge the realities of warfare. Similarly, those responsible for the national security of their respective nations, and for the effective utilization of modern weapons and weapons systems in the defense of their vital national interests, were being admonished that they must be cognizant of the very real danger to the environment that combat operations inescapably entail. Unfortunately, much of that debate tended to polarize, rather than mediate these often disparate positions. The principal purpose of the Naval War College Symposium was to provide a forum for U.S. and foreign experts representing the breadth of that spectrum to enlighten one another. To that end, forty eminent government officials, legal scholars, scientists, environmentalists and operational commanders from the United States, the United Kingdom, Australia, Argentina, Canada, Germany, Switzerland and the Netherlands assembled in Newport to engage in a broad ranging investigation of these issues. The product of that endeavor, as reflected in this volume, has been a marshaling of views that will further the development of an international consensus along rational and effective lines.

The Symposium looked first at the strategic imperatives of international armed conflict and of non-international military operations involving the use of force, that of necessity may impact adversely on the natural environment. This was followed by an appraisal of the nature and relative severity of that impact. The Symposium next examined the existing framework of international law and its effectiveness in providing an acceptable level of protection for the environment. Finally, the Symposium assessed the need for new international accords to establish additional norms for protection of the environment across the spectrum of operations involving armed conflict or to provide enhanced means of enforcement for existing measures.

This volume is comprised of 39 Chapters organized into ten Parts. Part One, entitled Introduction, consists of welcoming remarks by Rear Admiral James R.

Stark, President of the Naval War College and by Professor Jack Grunawalt, Director, Oceans Law and Policy Department of the College and Symposium host. The Opening Address, presented by the Legal Advisor to the U.S. Department of State, Mr. Conrad Harper, provides an overview of U.S. policy regarding protection of the environment during armed conflict. Part One concludes with an address by Rear Admiral Carlson LeGrand, JAGC, U.S. Navy, the Deputy Judge Advocate General of the Navy. Rear Admiral LeGrand's presentation, "Framing the Issues", provided the conferees with an outline of the matters that were to be addressed and set exactly the right tone for the subsequent proceedings.

Parts Two through Five and Seven through Nine report the proceedings and papers of the seven Symposium panels. Each of those Parts devotes a separate chapter to the papers of the individual panelists while the final chapter reports verbatim the proceedings of that panel. This reporting methodology ensures a full, albeit somewhat redundant, accounting of the work of each panel.

Part Two reflects the proceedings of the first panel - The Strategic Imperative, moderated by Brigadier General Walter Huffman, JAGC, U.S. Army. Panel I sought to determine what impact on the environment must the military be allowed in order to win across the spectrum of conflict. Panelists were Rear Admiral William Wright, IV, U.S. Navy; Brigadier General Joseph G. Garrett, U.S. Army; and Major General Robert E. Linhard, U.S. Air Force. Each panelist provided an operational commander's analysis from the perspective of his service.

Part Three addresses the Environmental Threat of Military Operations. Vice Admiral James Doyle, Jr., U.S. Navy (Ret.), served as moderator. Dr. Ronald A. DeMarco, Director of Environmental Programs in the Office of Naval Research, and Colonel Frank R. Finch, U.S. Army, Director of Army Environmental Programs, discussed, respectively, the impact on the marine and land environment of both combat and non-combat operations. Mr. William Arkin, long associated with the environmental movement and an internationally recognized voice on the military-environmental human rights nexus, assessed the impact of the Gulf War on Kuwait, Iraq and the waters of the Gulf. Dr. Arthur Gaines, Jr., of the Marine Policy Center at Woods Hole Oceanographic Institute, served as commentator for the panel. Dr. Gaines focused principally on the extent that environmental protection concepts can reasonably be applied to military operations and the harm to the environment caused by such operations relative to harm caused by natural disaster phenomena.

The Existing Legal Framework - Protecting the Environment During International Armed Conflict, was the topic of Panel III and is reported in Part Four. Dr. Myron Nordquist, Professor Of International Law at the Air Force Academy and the 1995-96 Stockton Professor of International Law at the Naval War College, served as moderator. Professor George Walker, Professor of Law at Wake Forest University, and Professor Adam Roberts, Montague Burton

Professor on International Relations at Oxford University, presented the principal papers for Panel III. Professor Paul Szasz, former Principal Legal Officer and Deputy to the Legal Counsel of the United Nations, was the commentator for the panel. Professors Walker, Adams and Szasz outlined the development and current status of the international legal order pertaining to environmental protection during armed conflict. Their presentations, and the lively discussions that followed, provide a comprehensive assessment of existing international customs and conventions that apply directly or derivatively to the environment in time of war.

Part Five continues the analysis of current international law but does so with respect to the use of force below the threshold of international armed conflict. Panel IV, The Existing Legal Framework - Protecting the Environment During Non-International Armed Conflict Operations Involving the Use of Force (i.e. Military Operations Other Than War - MOOTW), was moderated by Rear Admiral Horace B. Robertson, JAGC, U.S. Navy (Ret.), and Professor Emeritus of Law at Duke University School of Law. Panelist were Rear Admiral Bruce A. Harlow, JAGC, U.S. Navy (Ret.), former Assistant Judge Advocate General of the Navy; and Colonel James A. Burger, JAGC, U.S. Army, Staff Judge Advocate, Allied Forces Europe/Headquarters AFSOUTH; both of whom presented principal papers. Dr. Raul Vinuesa, Professor of International Law and Human Rights at the University of Buenos Aires; and Professor Theodor Meron, Professor of International Law at New York University School of Law, served as commentators. Panel IV examined that body of international environmental law that pertains to internal conflicts as well as to the utilization of the military for such peacetime purposes as humanitarian intervention, peacekeeping, non-combatant evacuation operations and disaster assistance. The elusive concept of "MOOTW" was also addressed in this context. Colonel Burger's report on the manner in which NATO forces in Bosnia are incorporating environmental protection considerations into operational planning and rules of engagement was particularly timely and germane.

Mr. Gary Vest, Principal Assistant to the Deputy Under Secretary of Defense for Environmental Security, addressed the conferees at a luncheon on the second day of the Symposium. Mr. Vest's remarks and the ensuing questions and answers are set forth in Part Six of this volume. The extraordinarily robust environmental protection program of the U.S. Department of Defense, currently funded at an annual rate in excess of five billion U.S. dollars, coupled with a well-developed environmental ethic within U.S. armed forces generally, led Mr. Vest to conclude that protection of the environment throughout the spectrum of military operations is a high priority for the United States.

Part Seven addresses the issue of State responsibility and civil reparation for environmental damage arising during armed conflict. The moderator for Panel V,

which undertook this effort, was Mr. Todd Buchwald, the Assistant Legal Adviser for Political Military Affairs in the U.S. Department of State. Panelists were Professor Christopher Greenwood at Magdalene College, University of Cambridge in the United Kingdom, and Professor Leslie C. Green, University Professor Emeritus and Honorary Professor of Law at the University of Alberta, Canada. Dr. Glen Plant, Director of the Centre for Environmental Law and Policy at the London School of Economics was the commentator for this panel. (The aptness of the names of the panelists - Greenwood, Green and Plant - was noted by Mr. Buchwald to the delight of the conferees). All three panelists stressed that while States are legally responsible for environmental damage that they cause which impacts beyond their own borders, the reality is that there have been very few instances where States have consented to arbitral or judicial resolution of claims brought against them. Absent a Security Council-mandated resolution (such as the U.N. Compensation Commision for Iraq), mechanisms for international enforcement of State responsibility for environmental damage are essentially non-existent.

Part Eight of this volume examines criminal responsibility for environmental damage, particularly during armed conflict. Dr. Anne Hollick, U.S. Department of State, served as moderator for Panel VI. Panelists were Professor Michael Bothe of Johann Wolfgang Goethe University in Frankfurt, Germany, and Dr. Gerard Tanja, General Director of the T.M.C. Asser Institute for International Law in The Hague, the Netherlands. Professor Howard S. Levie, Professor Emeritus of Law at Saint Louis University, was the panel commentator. This group of eminent scholars focused on criminal responsibility for environmental damage under the existing law of armed conflict. Once again the conclusion was reached by the panelists that although the current framework of the law on this issue is not as well-developed as it might be, particularly as it applies to non-international armed conflict, the principal failure is in the arena of enforcement.

Part Nine reports the papers and proceedings of Panel VII: The Debate to Access the Need for New International Accords. The moderator for Panel VII was Colonel James Terry, USMC (Ret.), formerly the Legal Advisor to the Chairman of the Joint Chiefs of Staff and now with the U.S. Department of the Interior. Panelists were Dr. Hans-Peter Gasser of the International Committee of the Red Cross, Dr. Dieter Fleck of the German Ministry of Defence, Dr. John H.McNeill, Principal Deputy General Counsel of the U.S. Department of Defense; and Professor Ivan Shearer of the University of Sydney, Australia. Commentators were Captain J. Ashley Roach, JAGC, USN (Ret.), and now of the U.S. Department of State; and Professor Bernard H. Oxman of the University of Miami School of Law. The third commentator for Panel VII, Professor Wil D. Verwey of the University of Groningen, the Netherlands, was unable to attend the Symposium. Professor Verwey's provocative paper was nonetheless presented to the conferees by Captain

A. Ralph Thomas, JAGC, U.S. Navy, Deputy Director of the Oceans Law and Policy Department at the Naval War College. The strong, albeit not unanimous, conclusion of the panelists and commentators of Panel VII was that although a good deal of work remains to be done to further develop the framework of international law protecting the environment during armed conflict and other military operations involving the use of force, pressing for additional international accords at the current time would likely be counter-productive. There was, however, general consensus that it is the failure of enforcement of existing norms rather than the lack of standards for protection of the environment that is the principal deficiency of this area of international law generally, and of the law of armed conflict in particular.

Part Ten, Conclusion, consists of the Concluding Remarks of Professor John Norton Moore of the University of Virginia. Professor Moore's remarks provided a powerful and articulate capstone to the Symposium. Professor Moore noted that there is nothing inherent in modern warfare that compels environmental destruction of the magnitude visited on Kuwait and the Persian Gulf by Saddam Hussein during the Gulf War. Professor Moore agreed with the overwhelming majority of speakers before him that the existing legal framework provides the necessary basis for protection of the environment from wanton destruction during armed conflict. The principal task in enhancing the rule of law is not "tweaking the normative system" but ensuring "compliance with the existing legal regime." Professor Moore concluded by noting that the core concept for enhancing the rule of law is controlling governmental actions and that it is the leadership of "rogue" totalitarian regimes that is the fundamental problem. The importance of effective deterrence under the rule of law is the key to controlling the behavior of that criminal elite.

The purpose of this volume is to faithfully report the extraordinary breadth of operational experience, scientific expertise, legal acumen and public policy sagacity represented by the papers, presentations and discussion at the Naval War College Symposium on Protection of the Environment During Armed Conflict and Other Military Operations. The editors would like to add their collective voices to that of the President of the Naval War College in thanking all of the participants for their role in ensuring the success of the Symposium and for their contribution to this volume and to the study of the Law of Naval Warfare. The views represented in this work will indeed further the development of an international consensus to facilitate more effective protection of the natural environment across the spectrum of conflict.

Richard J. Grunawalt
Professor of Law

John E. King
Colonel, JAGC
U.S. Army

Ronald S. McClain
Major
U.S. Marine Corps

PART ONE

INTRODUCTION

Chapter I

Welcoming Remarks

Rear Admiral James R. Stark, U.S. Navy
President, Naval War College
and
Professor R.J. Grunawalt
Director, Oceans Law and Policy Department, Naval War College

Professor Grunawalt: Good Morning. Let me be the first to unofficially welcome you to Newport. I will leave the formal welcome to the President of the Naval War College, Rear Admiral Jim Stark, in just a moment. In looking out at all of you folks here this morning, there are so many of you that are old friends, and now so many new friends. As a matter of fact, Bruce Harlow and I were reminiscing last night that we first began to work together 30 years ago. And others of course, we have just met for the first time this morning. So old friends and new, and folks from far and near. Welcome! Ivan Shearer takes the prize for coming the longest distance, from Australia. Raul Vinuesa, I guess you're second, from Argentina. Howard Levie, a Newporter, came the shortest distance to be with us today. But anyway, welcome one and all. You will see a fairly large contingent of Stockton Chairholders, old and new, and hopefully future, amongst us as well. With us are former Chairholders Howard Levie, Robbie Robertson, Jack McNeill, George Walker, and myself. Myron Nordquist, the current holder of the Chair is with us as well. Others who contributed a paper, and Bob Turner, with a prior commitment down at Virginia, could not be with us today. And I am sorry to report that the Mallisons could not join us. I received a letter from Tom and Sally that I would like to share with you.

> Dear Jack, I'm sure you know how disappointed we are not to be at the Naval War College Symposium. Sally and I send warm best wishes to you and your colleagues. Please convey our best wishes to the participants in the Symposium including many good friends of ours and former students. We know that the Symposium and ensuing *Blue Book* will be iminently successful.
>
> Tom and Sally Mallison

So we pretty well have most of the Stockton waterfront covered.

The genesis of this conference actually came about two years ago at a Naval War College Operational Law Board of Advisors Meeting right here in this room. The concept of having such a conference was proposed by Captain Harvey Dalton. We have finally brought it to fruition with the assistance of the Under Secretary of Defense (Policy), who is our sponsor. Admiral Biff Legrand will tell us a little later this morning about the task ahead in his *Framing of the Issues* presentation. So we anticipate a spirited two and a half days of discussion.

We have a whole bunch of different folks with us. We have environmentalists, warriors, academics, policy makers, lawyers, engineers, and scientists. We have the entire spectrum of interests here. Hopefully, we can learn from one another and perhaps bring a little harmony to what is often times a contentious issue. We are certainly looking forward to your participation during the next two and a half days.

I would also like to introduce you to my staff and those who will be of assistance to you throughout the Symposium. First of all, Captain Ralph Thomas, U.S. Navy. In addition to being Deputy of the Department, Ralph is responsible for those matters dealing with naval warfare. Colonel John King, U.S. Army, who I think you all have been talking to quite a bit. John, in addition to being responsible for land warfare issues within the Department, is the coordinator for our Symposium. And we will be hearing a lot from John. Captain-Select Pete Mitchell, U.S. Coast Guard, is our maritime law enforcement guru. Major Ron McClain, U.S. Marine Corps, is our amphibious warfare specialist. And just so you appreciate that we are truly "purple," we will have an Air Force officer, Lieutenant Colonel Mike Schmitt, joining my staff next spring. Mike will bring an Air Force dimension to our department as well. In addition, most of you have met our secretary, Ms. Ginny Lautieri. Ginny is the one who really runs things out in front, so please call upon Ginny to help as well. I also very briefly want to mention our reserve contingent that is here to assist us; Commander Lenny Henson, Commander Don Hill, Commander Pete Gazda, and Lieutenant Commander Bill Reilly. We are all at your disposal. Please call upon us to help and assist in any manner that we can.

Next, I would like to introduce Rear Admiral James Stark, U.S. Navy, who will extend a formal welcome to you all. Not too long ago, Professor John Haddendorf, principal author of the centennial history of the Naval War College, decided that he would entitle his book, "Sailors & Scholars". We have been very fortunate over the years here at the Naval War College to be led by sailors and scholars, dating back to Luce, Mahan, Stockton, and more recently, Stockdale. Most certainly Admiral Jim Stark falls into that mold. Naval Academy class of 1965, Ensign Stark went to sea duty in the destroyer *Brownson*. Here you see the cycle begin, sea-to-scholar, sea-to-scholar. As a Fullbright Scholar, he went to the University of Vienna. Then back to sea again with destroyers *Wilkinson, Jenkins and Higby.* Next, it was on to graduate studies in foreign policy at the Fletcher School of Law and Diplomacy at Tufts University where he earned his doctorate in Political

Science. Then Commander Stark went back to sea as Executive Officer in the destroyer *Miles Fox* and the cruiser *Richard Turner*. Captain Stark commanded the frigate *Jules A. Furer*, and the cruiser, *Leahy*. Shore assignments along the way were obviously very important to him as well. He served on the OPNAV Staff, on the National Security Council Staff, and as the Executive Director of the CNO Executive Panel. Selected for flag rank in 1991, Admiral Stark assumed command of Training Command, Pacific Fleet. Most recently, before coming here to Newport, he was Commander of the NATO Standing Naval Force Atlantic. He assumed command here at the Naval War College last June. Again, a true sailor-scholar and, more importantly, my boss, Admiral Jim Stark.

Rear Admiral Stark: Good morning. I would like to welcome all of you here to Newport and to the Naval War College for what promises to be a very interesting and important conference. As I look outside I see that the environment may or may not be smiling on us today; it may rain. Just a few years ago, maybe six or seven years ago, if you had asked an operational naval officer, and I consider myself more of an operator than anything else; if you had asked an operational naval officer about the impact of our operations on the environment and vice versa, he probably would have responded with a litany of complaints. He might have complained that because of environmental concerns he had to stack trash and garbage on the stern of his ship rather than throwing it overboard as he had done for many, many years. And, in a culture which judges the smartness and professionalism of a ship and its captain by the cleanliness and good looks of that ship, this was a hard pill for many of us to swallow. But over time, and despite complaints, those sorts of accommodations for the environment have come to be second nature. And, more encouraging, the Navy has now fielded a number of initiatives which make the normal housekeeping functions of warships much more environmentally acceptable. But those things are really ancillary to the topic that we are addressing today. And, I would say that over that six or seven year period, two things have changed our view about the importance of the environment on military operations.

The first of those is the fact that the Soviet Union went away. Back in the bad old days of the cold war, we in the Navy spent most of our time worrying about, and planning for, how we were going to cross thousands of miles of open ocean in the North Atlantic and Northern Pacific against a very, very dangerous threat. Because of that, we had what most people considered an open ocean strategy. And yet the real job that we were trying to do was to get close to the enemy's coast so that we could project power ashore, either through air strikes, missile strikes or gunfire support, to be able to make our influence felt on the battlefield where things were going to be decided. So when the Soviet Union went away, it meant that we were now able to cross those thousands of miles of open ocean and get to within

20 or 50 miles of anybody's coast. And, we could come right up against their territorial waters. But, that is a much more complex environment and the things that we would be doing there, in shallow waters close to the coastline, were obviously going to have a much greater effect upon the local environment. And, it heightened our sensitivity to that concern.

The second thing that happened obviously was the Persian Gulf War. I think two things in that war really brought awareness of the environment home for us in the Navy. The first was the fact that the Iraqis at one point dumped hundreds of thousands of gallons of crude oil into the waters of the Northern Persian Gulf. As a result, there was tremendous damage to marine life; there was damage to the coastline, and it also had some very serious implications on the way we were able to operate our ships. If you bring a ship into water that is heavily contaminated with crude oil, it is going to foul your pipes. It is going to particularly foul your condensers and you will not be able to operate. The other thing was that the Iraqis intentionally detonated hundreds of oil wells in Kuwait. It was the sight of those flames and the heavy black smoke, day-in and day-out, for months, polluting the entire northern Gulf area that brought home to many of us just what a tragedy war can be for the natural environment. From a personal level, and as Jack has mentioned, I was the Commander of the Standing Naval Force Atlantic, and what happened to me was that we got "lost" and ended up in the Adriatic for a year. While I was there I operated with Admiral Bill Wright who was embarked on the carrier *Saratoga* at the time. My task in the Adriatic was enforcing Operation Sharp Guard, which is the United Nations and NATO embargo of the former Yugoslavia. When one thinks of that job, one normally thinks of us going aboard ships and searching for arms or tanks, mortars, shells, AK 47s, whatever. But, a major concern was oil -the importation of crude oil and fuel oil to Serbia through its ports on the Montenagran coast. As a matter of fact, just sixteen months ago there was one instance where a 65,000 ton Russian ship, the *Ledo II*, tried to break the embargo. Fortunately, and thanks to the professionalism and bravery of a small group of British and Dutch Marines, we were able to conduct a fast rope assault from helicopters on to the *Ledo II*, and at gunpoint take control of the ship and turn it around just a few miles from Yugoslavian territorial waters. However, I would point out that there are things that a ship can do to make it impossible for you to get those marines on board. And, if you can't land the people by helicopter it becomes very, very difficult to stop a determined Master who wants to break that embargo. A 65,000 ton ship tends to be difficult to stop for a 5,000 ton destroyer. We call it the law of gross tonnage and it has nothing to do with the juridical law; its more of a physical law. What it means is that for a Master who is willing to risk some damage to his ship and some casualties to his crew, if he puts his ship at 18 knots and heads straight for the coast, there's very, very little you can do to stop him unless you shoot at him. Now I don't think we would use high

explosive shells. First off, I don't think that warning shots against a determined Master are going to deter him. And, even some shots into the superstructure probably will not. What happens when you put high explosive shells into a cargo of crude oil? Some people believe it will cause the ship to explode. I happen to think that will not be the case. You will just put some holes in the side. But, whatever you do, you are going to get some leakage of oil into the water. And, for me, I felt very strongly that I was willing to do whatever was necessary to stop any type of ship from getting through. It certainly raised the possibility, the very disagreeable possibility, that there would be serious environmental contamination. That was a major concern for the Italian government at the time just as it was for the operational commanders enforcing the embargo.

We, the commanders, were particularly concerned after we talked to the shore establishment, the supporting staffs about it and they said it was our decision and our responsibility, so good luck. We felt that was a somewhat cavalier attitude and that there was more we could do about it. I am very pleased to relate to you that we were able to get the staffs to make arrangements to ensure that there would be procedures and assets, *i.e.*, tugs, and oil containment booms, that could be brought out at very short notice so that we could minimize whatever environmental impact that might result from our operations. But, it certainly brought home to me the fact that military operations and the environment are today closely interconnected. So you have a very current, a very relevant, and a very important topic before you. I look forward with a great deal of interest to the deliberations of this Symposium. So, once again, I would like to welcome you to the Naval War College. We are very proud to be able to host you for this very important endeavor and I look forward to seeing more of you. Thank you again.

Chapter II
Opening Address

The Honorable Conrad Harper

Professor Grunawalt's Introduction of the Honorable Mr. Conrad Harper

Professor Grunawalt: We are very fortunate indeed to have with us this morning as our keynote speaker, Mr. Conrad Harper, the Legal Adviser of the Department of State. If there is a testament to the importance of the work we are doing, it is that Mr. Harper has found the time to break away from the State Department to join us this morning. Mr. Harper, we are just absolutely delighted that you are, in fact, here and able to join us.

Mr. Harper did his undergraduate work at Howard University and earned his law degree from Harvard. He was engaged in the private practice of law from 1971 to 1993, with the New York City law firm of Simpson, Thatcher and Bartlett. His specialization was in commercial litigation, but he did many other things along the way, for example, visiting lecturer at Yale Law School, consultant at the Department of Health, Education and Welfare, and working many years in various capacities with the NAACP and it's Legal Defense and Education Fund. He is a member of various Councils, including the council of the American Law Institute, a Fellow at the American Academy of Arts and Sciences, a member of the Council of Foreign Relations, and a Trustee of the Nelson Cromwell Foundation. Mr. Harper assumed his duties in the Clinton Administration on the 24th of May, 1993.

I had occasion to meet Mr. Harper a little more than a year ago. I had been given the unenviable task of briefing Mr. Harper and his staff with respect to the *Vincennes* incident and the destruction of Iran AirBus Flight #655. At that time, Mr. Harper and his staff were preparing for the Iran AirBus case before the International Court of Justice. Now I had occasion any number of times to talk about the *Vincennes*, in the context of rules of engagement, to a variety of audiences, national and international. But, this was the first time I was subjected to cross examination and let me tell you, it was a very interesting evolution. But, I learned something from Mr. Harper at that time and I can attest certainly this morning that our speaker is indeed a quick study and an insightful, precise, and consummate lawyer and a great gentleman. Ladies and Gentlemen, I give you our keynote speaker, Mr. Conrad Harper.

The Honorable Mr. Conrad Harper, Legal Adviser, U.S. State Department

Mr. Harper: Thank you very much Professor Grunawalt for that more than pleasant introduction. It is always delightful to hear oneself described in such a way that applause would emanate at least from one's mother if not from anyone else. I am particularly pleased to be in this room because before we came in this morning for this session I went around the entire room and looked at the titles of the many volumes on the shelves that line these walls. Although it is an extraordinary collection in its own right, I know it is just the leavings, if you will, of a major library here at the War College. But nonetheless, it's an extraordinary group of volumes gathered over the last hundred years dealing with history and political science and warfare. And, many of them are in dust jackets of the 1890's and early 1900's. So to some of us who have a little touch of bibliomania, it was just extraordinary to see what has been placed here to grace this historic conference facility. I am grateful for this particular environment.

I am particularly glad to be with our distinguished colleagues in the armed forces, government, the academy, and the sciences for what promises to be a most stimulating conference on the protection of the environment during armed conflict and other military operations. The knowledge and scholarship and experience that the group assembled here brings to the subject is impressive. And, I am grateful to Rear Admiral Stark and Dean Wood for the gracious invitation to take part in these proceedings.

The U.S. Government has long taken a very serious interest in this subject. The Departments of State and Defense have, for some time now, participated actively in international discussions regarding protection of the environment during military operations. Consensus, as we all know, is not easy to forge, but I believe that our efforts in recent years have been productive, and have beneficially raised the profile of this issue in the international community.

Since Rear Admiral LeGrand will soon follow me to frame the issues to be discussed in the coming days, I thought I might address in more selective fashion the events of the Gulf War, which in recent years, have tended to dominate discussions in this field. Specifically, I would like to share with you what lessons I am and am not inclined to draw from Iraq's wanton damage of the environment during the Gulf War, and the international community's response to Iraq's conduct.

The facts are not in dispute. Iraqi forces deliberately exploded more than 700 oil wells in occupied Kuwait, and released more than one million tons of crude oil into the Persian Gulf. We have yet to completely fathom the consequences of this massive, reckless poisoning of the environment. The Gulf's ecosystem has been disrupted for years to come, for as long as twenty years according to some experts.

The oil fires lighted by Iraqi forces produced a torrent of pollutants which cast a toxic pall over Kuwait and soiled the skies of other Gulf States as well.

This tragedy fueled an already existing debate among lawyers, scientists, policy makers and military officials over the adequacy of the international legal regime which is intended to protect the environment from unjustified damage during times of armed conflict.

On one side of the debate are those who believe that the legal regime requires substantive modification. Some suggest the need for the wholesale creation of new international instruments. Others advocate a range of smaller-scale changes which would ostensibly clarify and expand the reach and effect of existing laws. Among the changes suggested are expansion of the scope of Additional Protocol I to the 1949 Geneva Conventions and the 1977 Environmental Modification Convention (ENMOD). Additional Protocol I, to which the United States is not a party, prohibits the use of methods of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment. Parties to the ENMOD Convention undertake not to use environmental modification techniques having widespread, long-lasting or severe effects as a means of destruction or injury to another party.

In addition to expanding the scope of Additional Protocol I and the ENMOD Convention, it has also been suggested that their terms be clarified and harmonized. It has been said that the terms "widespread, long-*term and* severe" on the one hand, and "widespread, long-*lasting, or* severe" on the other are vague and imprecise.

Others have proposed modifying the proscription against destruction of property not justified by military necessity and the related principle of proportionality to include explicit references to environmental damage among the categories of damage to be weighed in the law of war calculus. It has been suggested that these legal principles are currently formulated in a way that tips the scales in the favor of military action at the expense of damage to the environment.

The other side of this debate takes the view that the existing legal regime is substantively adequate and sufficiently protective. From this perspective, existing laws properly balance the need to protect the environment against the legitimate prerogative to engage in armed conflict under certain circumstances. It is the view of individuals in this camp that further development of the legal regime to protect the environment in times of armed conflict should focus on collective efforts to appreciate the not-insignificant scope and reach of existing laws, to disseminate and internalize these norms and to enforce them vigorously and remedy their violation.

Interestingly, the events of environmental consequence that occurred during the Gulf War have been cited as instructive examples both by those who believe that substantive changes in the legal order are necessary and by those who do not.

I must say that I belong to the latter camp. In my view, the crying need to enforce current norms far outweighs the need to modify or expand the existing legal regime. We should distinguish between two distinct legal imperatives which inform this discussion: The imperative to establish and articulate rights where appropriate, and the imperative to enforce those rights and to remedy, when necessary, their violation.

History suggests that lawmakers, whether judges or legislators, are understandably more inclined to embrace discussions of rights than to confront sticky, practical, and often times seemingly intractable questions embedded in issues of compliance and remedies.

One of our challenges, I think, is to resist this inclination, for rights divorced from a commitment to enforce them and to remedy their violation are of limited value.

The question of rights and liabilities is, in fact, not even always at issue. That Iraq violated international law by setting fire to oil platforms and dumping oil into the Gulf appears, in my view, beyond dispute. International law prohibits the destruction of property not justified by military necessity, prohibits military operations not directed against legitimate military targets, and prohibits military operations that cause incidental damage clearly excessive in relation to their direct military advantage. By any reasonable measure, Iraq's actions violated these proscriptions. Many observers have noted that the oil platform fires were ignited at a point when the conflict was essentially concluded, and therefore, not even a pretense of military justification existed for these Iraqi actions.

Consequently, the environmental events of the Gulf War are principally a case study in the difficulties of fashioning remedies and giving meaning to those international legal norms that are intended to protect the environment. Let us then take a closer look at the reaction of the world community to Iraq's destruction of the environment and ask whether it is serious, whether it is sufficient, and what lessons it suggests for the future.

U.N. Security Council Resolution 687 asserted Iraq's liability under international law for all direct loss or damage stemming from its unlawful invasion and occupation of Kuwait. The Resolution makes particular reference to "environmental damage and the depletion of natural resources" as if to emphasize that these elements of damage are not to be overlooked, and are to be treated together with more traditional indicia of damage and injury to persons, their livelihood and their property.

The precedential value of this Resolution should not be overlooked. It is, arguably, the first time that the international community has formally recognized wartime environmental damage to be compensable. On the other hand, Resolution 687 does not work any change in the law of war on environmental damage. And, it bears noting that under *jus ad bellum*, under international law relating to the use

of force, Iraq is liable for environmental and all other damage directly caused by its invasion whether or not it violated the law of war.

In accordance with Resolution 687, the U.N. Compensation Commission was established to administer the claims process and to make payments to claimants from a fund that was to be capitalized through a 30% levy on Iraqi oil exports. Unfortunately, these oil exports have not resumed because of Iraq's failure to comply with applicable U.N. Security Council resolutions; as a result, the Compensation Fund's balance is currently only about ten million dollars, which has been contributed by the United States and other countries (mostly from frozen Iraqi assets) to begin the claims process. I should note, for the sake of comparison, that we are estimating that approximately 200 billion dollars in claims will be filed with the Compensation Commission before the process is concluded.

The claims have been divided into subgroups and given priority on the basis of urgency. In December 1993, the first panel of the Compensation Commission began working on cases involving claims of death and serious personal injury. Other panels are giving priority attention to the claims of hundreds of thousands of foreign workers who were compelled to leave Iraq and Kuwait at great personal loss. Individual claims of less serious personal injury and property damage have followed, as have commercial claims. To date, the Commission has approved some 355,000 individual awards, totaling approximately 1.4 billion dollars. Environmental claims will be considered at a later point in the process, and the Commission has set a February 1997 deadline for their submission.

The reason for the long horizon for environmental claims is that it will take some time to assess accurately the long-term environmental consequences of Iraq's actions, and that until such assessments are concluded, effective, comprehensive consideration of environmental claims cannot occur. Of course, so long as the Compensation Commission's financial resources are not sufficient to cover the awards it issues, decisions will have to be made regarding the allocation of available funds, and the first priority will probably be to compensate individuals for direct personal loss rather than governments, which would likely be the principal claimants for environmental damage.

Let me hasten to add that there are limitations in the Gulf War example which affect the extent to which it may be considered a paradigm.

The Gulf War presents none of the shades of gray one would expect to find in a typical scenario implicating international legal protection for the environment during armed conflict. Iraq's actions reflect complete vindictiveness; unlike the typical case where there may be debate over the question of military necessity and justification, Iraq's conduct was, essentially, without any pretense of justification.

The Gulf War example is also atypical in that the perpetrator of the environmental damage was militarily defeated and, save for the operation of

multilateral sanctions, has substantial resources that can be used to satisfy claims arising from its conduct.

In short, the Gulf War example does not speak to the more difficult, more subtle cases where the intent of the party doing damage to the environment is less clear than it was in the case of Iraq. It is these cases that peculiarly challenge the international legal order: cases where the environment is not deliberately targeted for destruction; cases where environmental damage is incidental to achieving a military objective.

Changes to the law, to the existing legal order, will not, in my view, make such hard cases any easier, because their difficulty ultimately inheres in the nature of their circumstances. To the extent that widespread agreement on new laws and standards could be reached, and I have my doubts, the resulting agreement might likely resemble a lowest common denominator, decidedly unhelpful in dealing with hard cases.

Or, in order to garner consensus, a new agreement might well be a model of ambiguity, the value of which could also fairly be questioned. In this regard, I note the debate that has occurred in the wake of the Gulf War over whether Iraq's damage of the environment constituted "widespread, long-term and severe" damage in violation of Article 35(3) of Additional Protocol I. Although Additional Protocol I has received considerable support in the international community, what exactly constitutes "widespread, long-term and severe damage" is a question that continues to perplex commentators and to defy shared understanding. One might therefore be wary of a process that could very well generate new rules, new standards whose meaning would remain fundamentally in doubt.

In sum, I am unconvinced that new laws would help us answer difficult questions; the more likely outcome is that they would merely inspire continued debate on somewhat different terms.

To this point I have made reference only to civil remedies. Criminal sanctions are, of course, another tool, a potentially powerful tool, to enforce international norms. Whether the international community will one day elect to bring to bear the force of criminal sanctions against those who perpetrate gross and unjustified environmental damage in warfare remains to be seen. In my view, we have not yet arrived at the point where the international community is willing to put its credibility, commitment, and the full force of its conscience behind prosecutions for environmental crimes in much the same way that it has demanded accountability in the context of Rwanda and Bosnia. The absence of the necessary consensus is to some extent reflected in the continuing international discussions, and disagreements, about the appropriate subject matter jurisdiction of a possible International Criminal Court.

These are only a few of the issues to be addressed during our discussions which will no doubt enrich our understanding of this important subject. More than that,

these discussions constitute an integral part of our commitment to enforce the norms governing the protection of the environment during military operations. Through the process of dissemination, by teaching what international law requires, the Naval War College is shaping the understanding of the men and women of the armed forces in whose hands the integrity of the environment rests during military operations as so graphically brought home by Rear Admiral Stark's comments this morning.

Precautionary, *ex ante* efforts of this sort are crucial if we intend, as a practical matter, to protect the environment, and not simply debate liabilities, enforcement, and remedies after the fact. By engaging in discussions that may well help shape the legal regime, this institution ensures that the perspective of the armed forces and the realities of armed conflict are not lost or neglected in the process. Only through a commitment to dialogue, education, and consultation shall we succeed in building a reasoned measure of respect for the environment in the international community.

And I thank you for this opportunity to share some of my thoughts.

Professor Grunawalt: Mr.Harper has consented to respond to questions and I open up the floor to anybody who would like to begin.

Colonel Charles Dunlap, U.S. Air Force, U.S. Strategic Command: I would like to challenge your assumption that the way the Iraqi's waged war was clearly a violation of international law. How is a third world nation supposed to oppose a high-tech power that is a high-tech power because it has an industrial base that is dumping unbelievable amounts of pollutants into the air? In other words, isn't the use of smoke to defeat satellite systems and precision weaponry a legitimate way for a third world less-developed nation to resist a high-tech power?

Mr. Harper: I am glad you asked the question. First of all, I do not agree with your premise. More to the point, if Iraq's actions are not condemnable, there is nothing worth talking about during this conference. I took Iraq as the clearest possible case. I appreciate that by fouling the air and fouling the water it could be argued that Iraq was simply engaged in opposing the Coalition arrayed against it. But, this was a means so horrific, so disproportionate, so outrageous, that no one has come forward, and I understand you not to be doing this, to justify what Iraq did. This was an act or series of acts of desperation virtually at the last moment; at a time when it could not reasonably be argued that they would in fact slow the Coalition's victory over Iraq in the field.

Colonel Dunlap: Just a quick follow-up. Doesn't an armed force have the right to continue to resist as long as it has the means to resist? Or must it make an assessment as to whether or not it can be victorious? Isn't it legitimate to try to withdraw their forces from the area of combat? In other words, save what they could by obscuring the ability of the Coalition forces to identify their movements? In fact, during that period they launched an attack against the Marines. They were able to marshal their forces to launch an attack against the Marines advancing towards Kuwait City under the obscurant occasioned by the fires of the wells. As Admiral Stark said, the fouling of the waters posed a very real operational problem for Coalition naval forces. Looking at it from the third world's perspective, how can we condemn Iraq when we, as an industrialized nation, have these precision capabilities only because we have this infrastructure which is dumping pollutants into the atmosphere?

Mr. Harper: As an abstract matter, of course, one could say that a losing force has the right to defend itself as long as possible; to conserve its resources as long as it may. But it is not simply the United States that has condemned what Iraq did. The world community has condemned it. The U.N. has condemned it. I think it is fair to say, and I also think of this when trying lawsuits, it may not be important what the truth is; truth is what the jury has decided what is true. And, the world jury has decided this issue in a way that is absolutely clear.

Rear Admiral William H. Wright, IV, U.S. Navy: To my way of thinking, if Saddam Hussein had done exactly what he had done and the tide had changed and he had become the victor, there would be no jury. There would be no follow-up punishment. Isn't this essentially an example of "to the victor goes the spoils?" And when you, as the winner, want to find an excuse to continue to extract pain from the loser, you can do it.

Mr. Harper: Again, I apprcciate the challenge of your comment, but I don't accept either the premise or the conclusion that you advance. I think it's important when evaluating a conflict that we try to undertake a measure of justice. The same arguments that you put forth, of course, had been raised to challenge the war crimes trials in Nuremberg and in Tokyo. If we are not prepared to say, as of 1945-46-47, that customary international law already condemned aggression; and if we are not prepared to say today that customary international law and convention already condemns the wanton destruction of the environment; and if we are not prepared to apply the first set of principles to the Nazi's and to Tojo, or the second set of principles to Iraq today, then we may abandon any hope that any effort we make toward advancing the rule of law is worth a candle.

Professor Leslie C. Green, University of Alberta: I want to follow-up on the suggestions that have just been made. If I remember rightly, two things are relevant. First, you said, sir, that the world community condemned the Iraqi actions as a breach of the law of war. If I remember correctly, the Environmental Law and Warfare Conference, held in Ottawa about three years ago, didn't condemn it. That was a conference of lawyers, not of politicians. As much as I respect the Security Council, it is not a body of lawyers. Second, Additional Protocol I, which produced the restrictions on damage to the environment, was not relevant. It was not in force during the Iraqi operation, and even if it were, I think it provides that an offense only occurs if the intention is to affect the environment. But, in a general way, can it not be argued that creating a smoke screen, setting fire to oil intentionally released into the water to prevent landings and that sort of thing, are all justifiable even though you may be losing and your purpose is to just cover your retreat? I suggest that it goes a little far to maintain automatically that this was clearly a breach of the law of war as it existed at that time.

Mr. Harper: I like the fact that the first three speakers seem to be reading from, let us say, conjoined texts. Let me see if I can give yet a third answer. First, the fact that lawyers gathered in Ottawa did not see the matter as the Security Council and other components of the world community did, is to me, an interesting, but not dispositive fact. I do believe the Security Council is a body of law though not a court and not a group of lawyers as such. But, it is operating within the confines of a legal system under the Charter, and therefore, its statements with respect to this subject are entitled to a good deal of deference from us, at least to the extent of a clear recognition that what Iraq did was beyond the pale. Indeed, none of us can cite an example prior to 1991, that would at all be clearly relevant to what Iraq had done under the circumstances.

Second, it seems to me that any person who is fighting any kind of war will want to argue that any action taken in regard to defense is justifiable. And to some extent, the discussion is rhetorical rather than substantive. There will always be somebody around who will make an argument of justification for an action deemed to be necessary under the circumstances. But, it is the function of reason under the circumstances that I think is decisive here. If we are not prepared to endorse the proposition that at some point the befoulment of those waters and the befoulment of that air was not legally beyond the pale, then we may as well decide that the enterprise in which we're all engaged, which is to bring a system of international law to bear on questions of armed conflict, is simply an irrelevant exercise only fit for discussion and not for implementation.

Vice Admiral James H. Doyle, Jr., U.S. Navy (Ret.): I never had the opportunity before to cross-examine the Legal Adviser of the State Department, so I better take it. I want to approach it from a little different perspective and get your views. I think what you are hearing from Admiral Wright and Colonel Dunlop is the dilemma which an operator is faced with when he has to make a decision in those shades of gray cases. Since, in this particular case, the standard of widespread, severe and long-term is not knowable and you mention that claims cannot even be approached or settled at this point, maybe we are asking the wrong question. Maybe the question should be more oriented toward military justification. You have got to have some standard there and the operator at sea is probably not going to get instructions other than "use your own best judgement." It is going to be up to him to make a decision, so what are your views on that?

Mr. Harper: If I understand you correctly, you are inquiring whether military justification is the only screen through which we put this question, as opposed to considering a competing environmental objective.

Vice Admiral Doyle: How can we consider the unknown competing environmental effects at this point?

Mr. Harper: I think the situation is that we can consider what is unknowable in the sense that we may not know precisely its contours, but we know enough to know that it is a catastrophe. It is a little bit like having been hit both by a train and by a car and trying to sort out how much damage is attributable to one and how much by the other. The fact is that you were damaged and to some degree the damage was inextricable. But, you are able to say, in a rough way, that what happened was wrong. Well, clearly I think that was the situation here. It is not, to a precise extent, known to us to what degree the environment was harmed. But, there is no doubt that the harm was substantial. And, if that is the case, foreseeable environmental harm is a fair counter to put into the balance test as against military justification to see whether or not justification carries the day.

Professor Michael Bothe, Johann Wolfgang Goethe University, Frankfurt, Germany: Just to assure you, I am not reading from the same paper as the previous speakers. Three comments. I was present at the meeting in Ottawa, mentioned by Leslie Green. I thought it was not the purpose of that meeting of experts to come to any conclusion condemning anything or anybody. If that were the purpose of the meeting, it was probably happening at the wrong meeting. But there are certain elements in the discussion of the Ottawa meeting which I strongly disliked. This was an attitude of benign neglect to what had happened in the field of

environmentallaw during the last twenty years or so. In this respect I certainly disagree with my good friend Leslie Green.

The second point pertains to the Security Council. What is the effect of Resolution 687? I think it is quite clear that the damage which has to be compensated by Iraq under that Resolution is not damage caused by a violation of the laws of war, it is damage caused by the fact that Iraq committed an aggression. Of course, there is a standard of unlawfulness that is quite different. So the question of whether this was widespread, long-lasting and severe, is for that purpose, irrelevant. I hope this is clear. I am trying to sell this idea to the U.N. working group which is dealing with that matter of which I happen to be a member. My question to you, sir, is, were you not pleading with your last remark in a little bit of the opposite direction of what you said to begin with. The issue of what are the values competing with military advantage which would have to be taken into account when a particular decision is made to attack or not to attack, or to attack in a particular way. I was most impressed to hear earlier this morning that this was a matter considered prior to measures being taken to enforce the U.N. embargo in the Adriatic Sea. Now, if we have a rule, which is as general as the principle of proportionality, you leave the balancing to the commander. It is the commander who is required to balance competing values in the particular case. Could we assist the commander by trying to further develop the law in order to make some of those issues a little clearer? I agree the principle is there, that the principle is good, but there should be a little bit more detail added to that principle in order to make it more workable. What you said in your last comment, I think, seems to meditate for that approach. Thank you sir.

Mr. Harper: Well, I hope I have not contradicted myself. I had intended to say two things. One, that as part of our discussions over the next several days, we are going to be factoring in the question of environmental damage as part of the law of war calculus. I think I said that earlier and I thought I was repeating it in somewhat different words a few minutes ago.

But, the second point, which is also important and stimulated by your remarks, is that our search for details is carried on in a worrisome way. We shall find ourselves spinning more wheels without necessarily learning more in the process. In that event, I submit it will always be the commander who is going to have to make decisions. And, he will not have before him a blueprint that will make it easy in very tough cases. There will be principles; there will be laws, if you will, but they won't dictate a result in a certain given circumstance. Human judgment will have to be brought to bear. My own sense is that over time, cases will illustrate the principles that will have already been established. But, I am not persuaded that undertaking a further conference to see whether we can elaborate those details now would be the best use of our collective energies.

Professor Paul C. Szasz: Two comments. One, again, back to the Ottawa conference three years ago, I too was a participant. Let me read just one paragraph from the chairman's conclusions: *"The conference noted that grave damage resulted from Iraqi actions during the Gulf War, for example, in setting oil fires and releasing oil in the Gulf. There was a shared view that important provisions of custom and conventional law had been seriously violated."* I think for a basic academic conference, that was a strong statement. In effect, the conference condemned the actions the Iraqi's had committed as unlawful.

The other comment, I think, is a slight quibble with what you said before. You said that the reason the compensation fund has not yet started operating is because of Iraqi non-compliance with Security Council resolutions. I think, actually, the reason is that there is a resolution under which Iraq could sell about 1.5 billion dollars worth of oil, regardless of compliance with other resolutions, but they simply refuse to do so because they do not want money to flow into the compensation fund.

Mr. Harper: I accept your modification and it's quite correct. There is a very special resolution for that purpose.

Professor Szasz: That means that even if they start complying as they hope to comply and these actions are lifted, they still may be reluctant to release that 30% to the compensation fund. So that is almost a separate problem from the other question of compliance.

Mr. Harper: That is true. Of course, the compensation fund is, in fact, operating. But, it cannot make substantial awards because the funds available are so small. Let me backup a moment and say that I am beginning to think I was the only person in the room who did not attend the Ottawa conference. Second, I waited until this time to call on you so you could read the paragraph that, in fact, nailed the coffin shut on this subject. But third, I do think that it is very, very important to recognize that the final statement did accord with the general thrust of my remarks; that the world community did condemn what Iraq had done.

Professor Adam Roberts, Oxford University: As a non-lawyer, I hesitate to put words into the mouth of the Legal Adviser and I am sure he will be able to take them out again. But it seems that some of those present, especially as reflected in the initial questions, may have been making slightly heavy weather, as many lawyers have, of the legal issues raised by environmental destruction in the Gulf War, by putting so much emphasis on those provisions of Additional Protocol I and the ENMOD Convention which you mentioned, that specifically address the

environment. And, I took your initial presentation to state something I am going to put much more crudely than you did, but thereby to invite your comment on it. That is, in order to assess the legality of what Iraq did in the Gulf War, in the incidents you have mentioned, you do not need to get to Additional Protocol I or the ENMOD Convention at all. The key provisions that were often not mentioned in many discussions about the legality of environmental destruction in the Gulf War, were those you alluded to in a general way. For example, Article 147 in 1949 Geneva Convention IV, the grave breaches clause, which mentions wanton destruction not justified by military necessity, and various other provisions of conventional law going back to the Hague Rules. It seems to me that many people, especially at the time when there were such apocalyptic predictions about environmental consequences, were lured into discussing the wrong conventions because their titles mention the environment. Maybe it is better that they stick to old rules and to interpret them because they cover the case better, and because they deal with the point that was raised in the question of whether in fact this is wanton destruction and despoliation of resources as much of as on the question of its actual subsequent, and in some cases, later incalculable impact upon the environment.

Mr. Harper: I embrace what you have said with one modification, I would have called your remarks elegant rather than crude. Certainly, it is the case that going back to Hague 1907 and coming forward, one could find that there was violation of long established principles of international law in what Iraq did.

Professor Bernard H. Oxman, University of Miami: As you know, sir, considerable public attention has been paid in the last decade to your job description. There was a panel of the American Society of International Law that I served on that endeavored to address that issue. I think that, in part, the line of argument that you developed depends in large measure on who - and under what circumstances - is performing the risk-benefit analyses that are required. Many of us have learned from experience that micro-management of military operations conducted thousands of miles away can produce undesirable results. The question is, it seems to me, who should be involved and at what point, in making decisions regarding targeting involving potentially catastrophic environmental damage.

I guess the question is whether you are satisfied, at least in terms of the organization of the United States Government, that an appropriate balance has been achieved on this issue. It is, of course, laudable that commanders in the field making these decisions, will weigh the factors prudently. But, I think some people at least would feel more reassured if they felt, not only in the case of the United States, but in the case of other governments as well, that balancing is being done at an appropriate policy level, with appropriate input by lawyers who are professionally trained to be detached as you had averred to.

Mr. Harper: I think the point is an excellent and important one. Certainly, it is fair to say, and I can say this in the presence of Jack McNeill, who on many occasions not only illustrated for me but instructed me in various matters, that we do try hard, at least in this Administration, to involve lawyers at an early stage in the matters that we believe have significant legal implications and major policy concerns. There is a fairly orderly methodology followed by the Legal Adviser for the National Security Council, the Assistant Attorney General for the Office of Legal Counsel, the General Counsel for the Department of Defense, the General Counsel for the CIA, and the State Department's Legal Adviser, for assembling from time to time, or through surrogates, to discuss issues that are of that quality. I cannot represent to you that we have reached Nirvana on this process. But, I think it has worked better and better as we have learned to play together, to use the favorite term of an elementary school teacher I very much liked. As we play together better, I think the process becomes a better one.

Professor Christopher Greenwood, Cambridge University: I would like to assure the Legal Adviser that I was not at the Ottawa conference either, which may go a long way to explaining the clarity of its conclusions. I would like to be controversial and say that I agree with the Legal Adviser's view that what Iraq did in the Gulf was a violation of the 1907 Hague Regulations. I do not think there is any need or any right to look at Additional Protocol I in this context because it clearly was not in force. And, I do not regard those provisions as declaratory of customary law. What I do think is important is that the reason why Iraq was clearly in violation is that the motive and the purpose that Iraq had was largely vindictive. Particularly in relation to the firing of the oil wells, it was an act of destruction designed to shock the world. Any military advantage that might have arisen was largely incidental. I am quite sure it was incidental in the minds of the Iraqi high command when they took the decision to do what they did. But, if we look at this as a precedent for the future, I think it would be a great mistake to be locked into the mind-set of thinking that the act of releasing a million tons of oil is necessarily a violation of the laws of war. I do not think that is necessarily the case at all. If Kuwait had released that oil into the Gulf as part of a desperate defensive measure to stop Iraqi amphibious operations in the original invasion, then I think we would come to a very different conclusion, applying the law that was in force at the time.

Mr. Harper: I can only add, it is great to hear that someone agrees with me. More to the point, I accept the counter-example, which is one of the reasons why the issue of getting into details as suggested by another speaker is extremely hazardous. We do not know what the future will present. We can be confident that it will not present easy cases and, therefore, we cannot escape that most tragic and yet, in a

real sense, that most important aspect of human life; that is to say, the application of our judgments to the facts at the time.

Professor George K. Walker, Wake Forest University: One quick question and comment. That is, we have to keep in mind the mirror image principle in all this. And that is, we cannot just simply look back and say the law of armed conflict is of a prior era; that we have to consider the possibility that there is law developing and developing even now. Is that your position?

Mr. Harper: Absolutely, the law is not only alive; it now and then kicks. We have to know that it is not a dead science. It is a lively art and we must bring to it a sense that it will increase in our lifetime and for generations to come.

Professor Grunawalt: We have run out of time. I want to thank the Honorable Mr. Harper. It's obvious, from the discussion we have just had, that his was a superb keynote address. And, I think it is now clear that we have many things to do this week and I thank each one of you who have raised issues and discussions. We have just begun to see the tip of the iceberg, a quick glimpse of the issues that we will be hearing from our panelists. And, I know that we will get into considerable debate and discussion on these topics. Mr. Harper, one more time, thank you so much for providing the tone, the necessity of this debate, and the intellectual content of your address. Thank you very much.

Chapter III
Framing the Issues

Rear Admiral Carlson M. LeGrand, JAGC, U.S. Navy

Professor Grunawalt's Introduction of Rear Admiral LeGrand

Professor Grunawalt: I'm very pleased to introduce an old friend, Rear Admiral Biff LeGrand, the Deputy Judge Advocate General of the Navy. Admiral Le Grand has the task this morning of framing the issues that we are to address during this Symposium. I gather from the questions and answers and the spirited discussion following Mr. Harper's remarks that what you have to tell us will fall on very, very eager ears.

But let me introduce our speaker. Admiral LeGrand is a native Californian, from Hollywood, and a graduate of the University of Southern California. He came to the Navy via the Officer Candidate Program. As an unrestricted line officer, he served on the USS *Hassiampa*, a fleet oiler, in the Gulf of Tonkin off Vietnam. He left active service to attend law school at the University of California Western. Following graduation, he was admitted to the practice of law in California. He was recalled to active duty in 1971, but this time as a judge advocate. He served in a variety of billets including Naval Legal Service Office, Guam, and Naval Air Test Center in Patuxent, Maryland. Then it was back to school again to get his Master of Laws degree at Georgetown University. Thereafter, he served as Special Assistant to the Assistant Secretary of the Navy for Manpower and Reserve Affairs. Following a tour of duty as the Force Judge Advocate for Submarine Forces, Pacific, he returned to Washington, this time for duty in the Office of the Chief of Naval Personnel. In 1992, he assumed command of the Navy Legal Service Office, Southwest, in San Diego. Selected for promotion to flag rank in April 1994, Admiral LeGrand assumed his duties as the Deputy Judge Advocate General of the Navy the following month. Admiral LeGrand is also the representative for Ocean Policy Affairs within the Department of Defense and in that capacity works very closely with Jack McNeill. Without further ado, ladies and gentlemen, it is my great pleasure to introduce the Deputy Judge Advocate General of the Navy, Rear Admiral LeGrand.

Rear Admiral LeGrand: Thanks Jack for that introduction. I've also got to say that for a grandfather, you are looking pretty chipper. For those of you who don't know, Jack became a grandfather about two weeks ago. His son Kurt is one of our

young judge advocates in the Naval Legal Service Office, Mid-Atlantic, in Norfolk. Kurt's wife, Robin, gave birth to Jordan Kate. Congratulations! Jack mentioned that I was from Hollywood and he also was telling me before the meeting, that if I had time on Saturday night to tune my television to NBC at 8:00 and I would see "JAG", the series. The young hero, a good looking guy, is the spitting image of Kurt. I've seen the pilot, and Jack may be right about Kurt, but if you want to see who the JAG flag officer is; to know who this obsequious, toadying, politically oriented animal is.... Well, you know that little box at the end of the credits that says the program does not depict any real person, living or dead? That one applies.

Let me welcome all of you to the Symposium. As I look over this audience, and as I was overwhelmed by the questions and comments following Mr. Harper's opening address, it's obvious we have an incredibly talented group of people here. People who are leaders in their respective fields of expertise, including some great folks from each of our five Services, from State and from academia. And, we're particularly pleased to have representatives of foreign nations here. This Symposium certainly offers a great opportunity for us to actively engage over the next couple of days in a discussion of a discipline that has emerged as one that cannot be ignored; one that must be considered in our operations and planning. My assigned mission, as Jack put it at the podium this morning, is to help frame some of the issues that will likely be a part of that discussion. And believe me, for an old personnel lawyer, that's a daunting mission. Thank you very much Jack.

I think it certainly comes as no surprise to you in this audience that war is often regarded as being unkind to the environment. As my old friend Col. Jim Terry, former Legal Advisor to the Chairman, Joint Chiefs of Staff, said:

> Inherent within the laws of armed conflict is the understanding that even the most sophisticated and precise weapons systems will exact a price upon the environment. While some collateral damage may be inevitable, there's a growing understanding that the international community's common interest is to minimize environmental destruction consistent with the exercise of legitimate measures of armed conflict.

There's a growing recognition that environmental devastation produces additional security concerns by depleting natural resources, by causing competition for scarce resources, and by displacing entire populations from devastated areas.

Over the next couple of days we are going to be discussing numerous ways in which the law of armed conflict operates to protect the environment. Further, we'll examine perceived benefits and deficiencies of the current international legal regime and debate whether new international legal protections are necessary. Hopefully, the insights gained from our discussions during this Symposium will help us to understand how to maximize both environmental protection and national security.

While reducing collateral damage will be one focus of the discussion, we will also have to recognize that, historically, the environment at times has been both an intentional target of warfare and subject to manipulation as a means of warfare. Fire and breach of dams to cause flooding to gain military advantage have been the most common methods of intentional environmental destruction. We should also note that we stand on the threshold of further technological innovation which may well result in the development of other, more terrible forms of environmental destruction. There are, if my figures are right, currently 72 major dams and 297 nuclear powered electrical generating stations around the globe which provide potential environmental targets that could cause unprecedented devastation. Finally, as we all know, nuclear, chemical and biological warfare has the potential to rain havoc on the environment. Environmental manipulation has also been used on occasion as a method of warfare. During the Franco-Dutch War in 1672, the Dutch were successful in stopping French advances by cutting a series of dikes to create the Holland Water Line. Likewise in June 1938, the Chinese dynamited a dike on the Yellow River to stop the advance of Japanese troops during the 2nd Sino-Japanese War. However, this action not only drowned several thousand advancing Japanese troops, it destroyed 11 Chinese cities, 4,000 villages and killed several hundred thousand Chinese. It also destroyed millions of acres of farmland and left several million Chinese homeless.

During WW II, the British destroyed two major dams in the Ruhr Valley, causing extensive damage and resulting in the death of approximately 1200 German civilians. The United States has been criticized for the use of defoliating agents during the Vietnam War, and for unsuccessful attempts to create rainstorms, to gain tactical advantage. On the other hand, it should be noted that at the end of the Vietnam War, the United States removed its naval mines from North Vietnamese waters and took other steps to safeguard the post-war environment. In contrast, the pictures of the devastation caused by Iraq in releasing an estimated 4-6 million gallons of oil in Kuwait and setting fire to some 732 oil wells are certainly etched into all of our minds.

The first session of the Symposium is going to focus on the strategic imperative. What impact on the environment must the military be allowed in order to win across the spectrum of conflict? Issues of readiness, training and actual operations will need to be addressed. The flip side to that, which is an examination of the threat posed to the environment by these operations, will also be addressed. These issues will then be analyzed under the existing legal framework; first as to protecting the environment during international armed conflict, and then as to protecting the environment during non-international armed conflict operations involving the use of force in military operations other than war.

The law of armed conflict is perhaps the starting point here. Historically, the law of armed conflict has developed as the result of the experience of war, which

has led to two series of conventions; the Hague Conventions, containing the rules governing the means and methods of warfare; and the Geneva Conventions, containing the rules governing the treatment of victims of armed conflict. While not containing detailed provisions directed specifically toward protecting the environment, the Hague and Geneva Conventions do prohibit unnecessary destruction, including destruction or damage to property. These basic provisions are now considered customary international law that is universally binding. Specifically, the Fourth Hague Convention of 1907 includes principles of limitation which prohibit unnecessary destruction not required by military necessity. Article 22 of the Regulations annexed to the 1907 Hague Convention, provides that the right of belligerents to adopt means of injuring the enemy is not unlimited. Article 23 prohibits both the use of arms, projectiles or material calculated to cause unnecessary suffering and the destruction or seizure of the enemy's property unless such destruction or seizure be imperatively demanded by the necessities of war.

The doctrine of military necessity, requiring subjective judgment and interpretation, is said by some to create a loophole or an excuse for every conceivable situation, so that the laws of armed conflict impose no real limitation and, therefore, no protection for the environment. Others maintain that the doctrine of military necessity invests too much discretion in the military commander. According to that view, in the heat of battle, the on-scene commander would always choose military advantage over environmental protection, justifying decisions based on military necessity after the fact. Additionally, there are folks who view powerful, technologically advanced nations, such as the United States, as inherently resistant to limitations on their military might, unwilling to accept restraints imposed by the law of armed conflict limiting their power. The counterclaim to these views is the current U.S. Department of Defense position that the existing international legal regime is sufficient to protect the environment during international armed conflict or military operations other than war.

The Department of Defense position is that while armed conflict may acutely impact the environment, prohibitions against unnecessary destruction are pervasive and provide a basis for the imposition of sanctions whether criminal or civil. For example, Iraq has been universally condemned for the wanton devastation inflicted on Kuwait. After the Gulf War, the Department of Defense issued a report detailing the extent to which law of armed conflict concerns permeated strategic decisions at every stage. For instance, during the conflict, bombing targets were carefully selected to avoid civilian population centers, cultural and religious structures and environmentally sensitive areas, even when it became apparent that Iraq was conducting military activities from such sites. In the view of those who believe the current law of armed conflict protects the environment effectively, the Allied restraint shown in the Gulf War is supporting

evidence that militarily powerful nations, such as the United States, are able to accept, implement and effectively enforce limitations on the conduct of armed conflict.

Returning for a moment to the 1907 Hague Conventions, Article 55 of the Regulations annexed to Convention IV imposes the obligation on an occupying State to protect natural resources during periods of occupation. Article 3 of that Convention provides that a belligerent party violating that provision of the Convention may be liable to pay compensation. Taken together, these provisions of the 1907 Hague Convention require a balancing of potential destruction with military requirements. Have they proven enduring and broad enough to cover ever-evolving technology? The adequacy of such provisions addressing State responsibility and civil reparations will be assessed during this Symposium. Like the Hague Conventions regulating the conduct of war, the Geneva Conventions protecting the victims of war can be construed as including protection for the environment. Specifically, Article 53 of the Fourth Geneva Convention of 1949 prohibits any destruction of property, whether public or private, by an occupying power unless such destruction is rendered absolutely necessary by military operations. Article 147 of the Fourth Geneva Convention, provides that extensive destruction. of property, not justified by military necessity and carried out unlawfully and wantonly, is a grave breach of the convention.

Criminal and civil responsibility for environmental damage are to be reviewed as a part of this Symposium. Discussion concerning the application of the Fourth Geneva Convention in this context is also important. The Fourth Geneva Convention provides for individual criminal liability for any breach, and State civil liability for grave breaches of the Convention. While reparations were ultimately imposed by the U.N. Security Council against Iraq for environmental destruction in Kuwait, many scholars argued that the Fourth Geneva Convention provided a sufficient legal basis for convening a Nuremberg-type war crimes tribunal to prosecute individual Iraqis after the Gulf War.

The 1977 Environmental Modification Convention, to which the United States is a party, limits military or other hostile use of environmental modification techniques as a method of armed conflict. Concerned by the use of defoliating agents and weather manipulation techniques used by the United States during the Vietnam War, the United States Senate passed a resolution in 1973 encouraging the Executive Branch to pursue a treaty prohibiting the manipulation of the environment as a weapon of war. The resulting Environmental Modification Convention prohibits a State from using any environmental manipulation that has widespread, long-lasting or severe effects on the environment for military or any other hostile use. Like the Hague Conventions, the Environmental Modification Convention governs means and methods of warfare. It applies regardless of the existence of military necessity, establishing an outer limit that

cannot be overcome, notwithstanding the presence of military exigency. Unlike the Hague or Geneva Conventions, the Environmental Modification Convention does not establish individual criminal or State civil liability, rather it provides for U.N. Security Council investigation and assistance by the other parties upon verification of a complaint.

Now whether the threshold that triggers the application of this treaty is too high or too low, is likely to be a subject addressed by our last panel, which will assess the need for new international accords. Nevertheless, the Environmental Modification Convention provides some further protection against the most serious forms of environmental devastation. So far, I've been talking about conventions that have been widely ratified, including those ratified by the United States. Another issue that this Symposium will address, is whether the United States and other nations that have not yet ratified Additional Protocol I of the Geneva Conventions, should be encouraged to do so as a means to further protect the natural environment during armed conflict. Opinion on this issue certainly appears divided. Articles 35 and 55 of Additional Protocol I contain parallel provisions protecting the environment from widespread, long-term and severe damage. Article 35 states that it is prohibited to employ methods or means of warfare which are intended or may be expected to cause widespread, long-term or severe damage to the natural environment. Article 55 provides that care should be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause widespread, long-term and severe damage to the natural environment, and thereby to prejudice the health or survival of the population. Attacks against the natural environment by way of reprisals are also prohibited.

To see the environment as one of the four interrelated categories of civilian objects afforded special protection by Additional Protocol I is an evolving concept. The other categories are cultural objects, places of worship, objects indispensable to the survival of the civilian population, and works and installations containing dangerous forces such as dams, dikes and nuclear electricity generating stations. Obviously, there are many situations in which two or more prohibitions could be violated simultaneously.

Supporters of ratification of Additional Protocol I, argue that Articles 35 and 55 represent an important stage in the development of humanitarian law by explicitly codifying protection of the environment. They note that the Environmental Modification Convention prohibits environmental manipulation as a means of warfare but does not prohibit targeting of the environment. In contrast, opponents of ratification have argued that the three-part threshold for triggering Additional Protocol I, which requires environmental destruction be widespread, long-term and severe, is too high to provide real protection. The

understanding of the drafters of the Protocol that long-term means decades, is much higher than the threshold established in the Environmental Modification Convention whose drafters defined long-term to be more than one season. In addition, some countries have argued that Articles 35 and 55 of the Protocol include limitations upon nuclear weapons which would, of course, upset the balance established in nuclear weapons conventions.

Finally, others have noted problems with Article 51 of Additional Protocol I, which requires parties to seek to minimize injury to the civilian population even when civilians are being used as so-called "human shields" for military operations. Even though the other party may have violated the law of armed conflict by locating *bona fide* military targets in population centers, the injunction against collateral injury to the civilian population remains. While the Protocol may contain some advantageous developments in the law of armed conflict, the disadvantages are such that no United States Administration has yet submitted the treaty to the Senate for its advice and consent for ratification.

From considerations of existing conventions, we will then necessarily turn to the question of whether new treaties should be developed to protect the environment in times of armed conflict. Now this topic has received a great deal of attention in the aftermath of the Gulf War and the destruction inflicted on Kuwait by Iraq. On the one hand, a number of leading scholars have argued that ecocide, if we may use that term, was a failure of deterrence, not law. Proponents of this view note that Iraq wantonly breached the Hague and Geneva Conventions and that blatant violations of the law cannot be remedied simply by establishing new laws. Further, some commentators have noted that while the international community has become proficient at drafting and negotiating environmental treaties, there is little evidence that the international community is equally adept at implementing and enforcing them. There were fewer than three dozen, multilateral environmental treaties in 1972. Today, there are nearly 900 international agreements that contain important environmental protections. Edith Brown Weiss has termed this situation the "treaty congestion" problem in emphasizing the need to shift resources from drafting and negotiating to supporting the implementation and enforcement of environmental treaties. Those who seek increased protection for the environment in times of armed conflict were certainly mobilized by Iraq's conduct during the Gulf War. Their proposals have largely focused on either restricting the methods of armed conflict or the location of that conflict. For example, on March 11, 1991, French representatives to the Governing Council of the United Nations Environmental Program proposed two new conventions, one protecting world heritage monuments in time of war and one prohibiting the targeting of ecological areas. That same day, Japan urged the adoption of a Declaration of Principles which would prohibit destruction such as that inflicted by Iraq as a method of warfare. These proposals were later discussed

at a Governing Council meeting on May 20, 1991, in Nairobi, Kenya. Others have urged that protected geographical sanctuaries be established through the Cultural and Natural Heritage Convention of 1972. And still others have urged that demilitarized areas be established by adoption of conventions similar to the Antarctic Treaty of 1959.

Two international conferences were convened in 1991 to address the need for additional law in times of armed conflict. First, Greenpeace International sponsored a conference in London at which it proposed a Fifth Geneva Convention. The Greenpeace proposal would prohibit the use of the environment as a weapon, would ban weapons aimed at the environment, and would prohibit indirect damage to the environment of a third State, irrespective of a claim of military necessity. This Fifth Geneva Convention would apply in all armed conflicts, not just to international armed conflict as do existing Geneva Conventions. And finally, the proposal would establish a responsibility to pay compensation for violation of the Convention. At present, this proposal does not appear to be moving forward. Second, in July 1991, a conference was held in Ottawa. United States' participants in Ottawa emphasized the importance of not unduly restricting otherwise lawful military operations. In general, the participants recommended further efforts be focused on enforcement mechanisms rather than additional international agreements.

Finding ways in which the laws of armed conflict could be better enforced will also be discussed at this Symposium. While some also argue that new laws of armed conflict are necessary, there seems to be greater consensus for examining ways to improve enforcement of existing laws of armed conflict. As Professor Bob Turner has said about the Gulf War, "The real reason was not that the law was ineffective but rather, unenforced law is ineffective."

Now, aside from use of military force, there are three ways in which the international community has sought to enforce the laws of armed conflict. The first method of enforcement has been to hold individuals criminally liable. The most frequently suggested model has been the use of a Nuremberg-type war crimes tribunal. Though many commentators urged the establishment of a tribunal to prosecute Iraqi war crimes, one was not established. However, the current tribunal established at the Hague by the U.N. Security Council pursuant to Articles 29, 39 and 41 of the U.N. Charter to prosecute war crimes in the former Republic of Yugoslavia, and in Rwanda, should give us a great deal of information, hopefully, about the effectiveness and practicability of such a forum in today's contemporary world. Now, in addition to an *ad hoc* tribunal, the Security Council also has the authority, pursuant to Article 43 of the U.N. Charter, to authorize a regional arrangement or group to conduct war crimes trials. However, many favor the degree of impartiality gained by use of an international, rather than a regional forum. Furthermore, there is growing sentiment to prosecute war criminals in

national courts. Both Austria and Denmark have recently prosecuted individuals accused of committing war crimes in the former Republic of Yugoslavia. While States have on occasion prosecuted their own nationals for war crimes violations, as Austria and Denmark have recently done, for the most part, they have resisted prosecuting enemy personnel since WW II. Nevertheless, that option may warrant greater attention.

A second widely used sanction has been the requirement that the responsible nation make reparations, usually of monetary damages, for environmental degradation or destruction. During active hostilities, seizure of assets has been accomplished both to deter aggression and to provide a source of potential reparations at the conclusion of hostilities. Claims commissions may be established by the agreement ending hostilities or by the U.N. Security Council pursuant to Articles 39 and 41 of the Charter. By Security Council Resolution 687, the U.N. Compensation Fund was created, and a commission was established and charged with evaluating crimes arising out of "direct losses, (and) damage, including environmental damage, as a result of Iraq's unlawful invasion and occupation of Kuwait." While injured parties may eventually obtain reparations, the possibility of future compensation provides little comfort to individuals and communities that experience loss and require immediate relief.

A third enforcement method could be described as condemnation in the court of public opinion. Professor John Norton Moore has long been an advocate of disseminating the facts of international law violations through the media. Moreover, Article 149 of the Fourth Geneva Convention authorizes an inquiry at the request of a party to the conflict concerning any alleged violation of the Convention. Evidence from such an inquiry may later form the basis for criminal prosecution. Finally, for those countries that are parties, Article 90 of Additional Protocol I authorizes the establishment of an international fact-finding commission to conduct investigations.

So, in summary, this Symposium will hopefully stimulate a broad discussion of the viability of the existing law and the need for new accords. In our opening panel, which will take place after lunch, we will begin with the first of our topics, "The Strategic Imperative." Ultimately, we will address each of the issues I have attempted to outline this morning, including whether the existing legal regime effectively protects the environment in times of armed conflict, whether the legal regime has been or is capable of being effectively enforced, and whether new developments in the enforcement of the law would better protect the environment. Because our national security interests, as well as the potential risks to the environment are enormous, the stakes regarding these issues are quite high. And, with the exceptional talent we have gathered here, we are looking forward to a productive and lively exchange of opinions. I would like to thank you all for being here and I hope you enjoy the Symposium. Thank you very much.

Professor Grunawalt: Thank you Admiral. Before we break for lunch, a couple of thoughts occurred to me as I listened to Mr. Harper's address, Admiral LeGrand's "Framing The Issues" presentation, as well as the intercessions from the floor. One thing I thought I would ask you to contemplate over lunch and when we get together after lunch, is the military dimension of the equation, the strategic imperative, that is, what one must do to win across the spectrum of conflict. Admiral LeGrand noted that it is our assessment that during the Gulf Conflict, the United States Armed Forces indeed were prepared to accept, implement, and effectively enforce international norms with respect to the protection of the environment. Mr. Harper pointed out, as did Admiral LeGrand, that the issue appears to be enforcement of that law which already exists, as much, if not more, than the necessity to develop further law. I am reminded of an article written by Professor Michael Reisman that appeared in Admiral Robertson's Volume 64 of the Naval War College's "Bluebook" series. Professor Reisman wrote very persuasively of the very positive role of military manuals in the general process of behavior of military forces. The whole theme here, and one again I would like you to carry with you and put into context when we hear from our military people this afternoon, is that ultimately it is not what kind of treaty one signs, it is the behavior of forces in the field that is going to determine whether or not military operations bring unacceptable destruction to the environment. You have to understand the critical role, the inescapable role, that comes from the subjective judgment of the operational commander on the scene. We are talking about a decision that must be taken in the crucible of conflict, in von Clausewitz's "fog of war." How do we do that? How do we prepare our operational commanders to do that which is right when these subjective judgments must be made? I believe very strongly in the efficacy of the military manuals approach and I recommend Michael Reisman's article to you if you have not seen it. Also, we are now in the process of promulgating the next iteration of the Commander's Handbook on the Law of Naval Operations, what was until recently called NWP 9. It, unfortunately, now has a new number, NWP1-14M. Finally, among us this morning are folks like Chris Greenwood, Dieter Fleck and Ivan Shearer, who have been working diligently in this military manual arena, to provide guidance to our military commanders who must make those substantive judgments so that they do so on the basis of that which we expect of them.

We had anticipated that Senator John Chaffee would be our guest speaker for the luncheon today. If you have been following the news these past few days you will have noted that it is very unlikely that any United States Senator is going to get out of Washington for the next several days and, unfortunately, Senator Chaffee has had to send his regrets. Nonetheless, we will now recess and reassemble at the Officer's Club for lunch.

PART TWO

PANEL I: THE STRATEGIC IMPERATIVE

Chapter IV
Naval Warfare and The Environment

Rear Admiral William H. Wright, IV, U.S. Navy*

Deterrence, as articulated in the National Military Strategy,[1] promotes the ideal condition for the protection of the environment. The devastation of the aggressor's homeland should be reason enough to pursue a course other than war . . . yet wars exists. Certainly, in the course of the two World Wars, mankind took a severe toll on the environment—to say nothing of his fellow man. During the Cold War era, the military forces of the two superpowers necessarily had an adverse impact on the environment as they prepared for possible conflict. The environmental damage caused by fifty years of weapons development, maintaining large standing forces, and exercising and operating their forces, has yet to be fully assessed. But it certainly is far less than would have been the case if World War III had come to pass. The environmental damage, as seen on CNN, during the Gulf War highlighted again the degradation that military forces can inflict on the environment in wartime, increasing pressure to regulate the impact that military operations have on the environment in war, as well as peace.

From a military perspective, remedies for environmental concerns should be pursued with appropriate consideration given to future contingencies requiring the use of military force; preventing friction between environmental policy and the realities of military conflict. An absolute ban on environmental damage caused by military operations is inconceivable. War by definition is a "no holds barred affair". Thus, the real issue is how best to minimize the environmental impact of military operations without constraining the military commander with policies that have little chance of serious consideration in wartime. But most importantly, we must not create uncertainty or risk aversion in the minds of our commanders regarding environmental considerations that could be exploited by their adversaries.

The Nature of War

Doctrine defines war as "a violent clash between two hostile, independent, and irreconcilable wills, each trying to impose itself on the other."[2] The very nature of war is synonymous with human casualties and environmental damage. Warfare will always have an adverse impact on the environment; the extent will depend on the willingness of warring nations to conform to environmental regulations that may constrain their ability to achieve victory in the war. Thus, as a practical matter,

expansion of the law of war to cover environmental concerns could be done in a manner similar to the approach taken in addressing humanitarian concerns. That is, avoiding environmental impact cannot be absolute; clauses like "military necessity" will be needed to recognize that a military commander realistically cannot be expected to place his force or his mission achievement at grave risk to enemy action in order to protect the environment. Nevertheless, military commanders can legitimately be expected to show due regard for avoiding unnecessary environmental damage in the conduct of warfare.

Can war be fought with due regard to the environment? Environmental concerns are having an increasingly significant impact on the conduct of peacetime U.S. military operations. But does compliance with environmental regulations end when war begins? Simply put, can we effectively conduct war using environmental "Marquis of Queensberry" rules when dealing with a "street fighter" who is not similarly constrained?

Naval Warfare Imperatives

Operating on and from the sea, naval forces have a unique ability to provide credible combat forces throughout the world. With the sudden change from the Cold War—with a single, overriding global threat posed by the other superpower—to the post-Cold War environment of multiple potential regional security challenges, the operational demands placed on naval forces have become much more diverse. Naval forces are increasingly being called on to provide the myriad capabilities needed to ensure success across the entire spectrum of military operations. In order to respond decisively to the crisis of the future, we must remain *ready, flexible, self-sustaining and mobile* in peacetime.[3] In war, we must maneuver and project fires without restraints. Underpinning the Navy's ability to provide credible combat forces prior to conflict and during combat are four strategic naval imperatives: realistic, demanding operational training, unimpeded mobility at sea, proven warfighting doctrine and effective weapons.

Training

The U.S. Navy and Marine Corps train to fight and win the nation's wars. In doing so, we train to a high level of professional competency that allows us to also carry out a broad range of military operations while we posture ourselves for war. Any encroachment on our ability to conduct operational training degrades mission effectiveness. Skills such as anti-submarine warfare can only be honed through the prosecution of targets which requires the deployment of sonobuoys, smokes, explosive signaling devices and torpedoes (exercise and war reserve). Our naval aircraft must conduct low-level bombing on land and sea targets and surface ships must fire their guns. Naval forces must seize, and be given, every opportunity to utilize these weapon systems under conditions which simulate realistic operations.

Not doing so ultimately creates exploitable vulnerabilities within naval forces. Without training as we intend to fight, we limit the effective utilization of the force in time of war.

Although environmental regulations are not aimed at naval forces specifically, they require compliance that impacts, directly or indirectly, on our ability to train effectively. Statutes such as the Marine Protection, Research and Sanctuaries Statute designate various sea areas as national marine sanctuaries. As the number of these sanctuaries increase, they begin to encroach on traditional near-shore training areas. These statutes require vessels to delay, modify or cease training in order to protect certain species of marine life. This conformance significantly affects naval training operations in or near these sanctuaries. A newly established marine sanctuary in Hawaii, for example, and the designated whale critical habitats in submarine transit areas off Georgia and Florida, may lend to a serious impact on naval operations. Although these areas may not be completely restrictive, they do require added operator awareness and compliance efforts that can detract from the realism and effectiveness of training. Environmental compliance has thus become an integral part of planning naval operational training. Ultimately, a point could be reached in which environmental regulations significantly degrade the effectiveness of operational training. At this juncture, we will have reached a point where our military no longer has the confidence or capability to meet the enemy on his terms without incurring unnecessary loses. Protecting the environment at the expense of human life does not meet anyone's sanity test. The challenge, thus, is to credibly articulate that in peacetime.

Weapon firings are a crucial element of peacetime training for combat readiness on deployment. But weapon firings are also of great concern to environmentalists. The military weapons range on Kahoolave Island in Hawaii was closed for several reasons; some included environmental concerns. Other weapons firing ranges are subjects of possible closure or added restrictions. Recently, the Olympic Coast National Marine Sanctuary, an area of several thousand square miles, prohibited all bombing activity in a preexisting training area. As weapons firing ranges are closed or subjected to restrictive regulations, the impact on combat readiness will increase. Naval forces will continue to be innovative and resourceful in working around these obstacles while pursuing their training objectives. But a trend is apparent that could eventually produce shortfalls in our combat readiness.

Mobility

This nation, by virtue of its geography, is a maritime nation. Our vital interests are worldwide. When combined with our national strategy of engagement, naval forces become the force of choice to operate forward and to be engaged, poised to defend critical links abroad. An enduring attribute of naval forces remains its ability to operate forward in support of national interest, secure through mobility upon the waters of

the world. The law of the sea provides a context of navigational freedom that is essential in meeting national objectives. A high degree of mobility across the broad oceans, through choke points and in littoral regions, is a prerequisite to the success of naval forces in executing the national security strategy.

Mobility can be impeded significantly by international or domestic regulation in the name of a protected environment. Nations wishing to impose their sovereignty beyond the internationally recognized 12 mile limit may use environmental concerns as an instrument of partial leverage. Economic zones can be redefined to include pollution and waste requirements during peacetime which serve to impede our freedom of navigation. As the focus on the environment gains momentum, these types of regulations represent clear dangers. The Act to Prevent Pollution from Ships (APPS) (33 USC 1901-1908) provides for the U.S. implementation of the International Convention for the Prevention of Pollution from Ships (MARPOL). Although a domestic statute, APPS imposes greater environmental obligations upon U.S. warships than is required under MARPOL. Any movement by the international community to implement reciprocal standards will impact naval operations abroad. Heavily used sea lines of approach, such as the Straits of Hormuz or the Malacca Straits, are likely candidates for onerous environmental restrictions. Environmental concerns brought forth by the possibility of collision or the fact that heavy transit of straits may pollute those waters could result in regulation which restricts, limits or prohibits transit without some toll for clean-up. Although hypothetical, many foreign ports already have anti-pollution regulations: Hong Kong and Singapore to cite a few examples.

Restrictions in accessing ports, either for pollution and waste regulation or for nuclear safety matters similarly impede our ability to sustain forward presence and remain engaged globally. Port visits are integral to supplying, servicing and providing morale for forces abroad, as well as showing the flag. These are key elements in the "engagement" policy of our nation. As environmental concerns grow, we must, in the name of national security, challenge those initiatives that encroach on our mobility in much the same manner that we must resist regulations that inappropriately or excessively restrict our free trade upon the oceans and within the ports of the world.

Another development which can hinder the full mobility of our naval forces would be any requirement for naval vessels to enforce environmental regulations. Naval units have already been trained and tasked to maintain continuous vigilance for driftnet fishing vessels and for ships discharging unusually large quantities of waste into the oceans. Just as the humanitarian concerns of rescuing "boat people" around the world interfered with routine operations, a parallel situation can be drawn in which naval forces required to be engaged in enforcing environmental regulation lose their focus from primary responsibilities. This tasking, if significant, could additionally overtax commanders and complicate priorities. To

maintain our freedom of mobility, naval forces must clearly understand and maintain a balance between their primary mission and their obligations to the international community.

Naval Warfighting Doctrine

Sea control, sea denial and power projection are fundamental naval missions. U.S. naval forces train to these missions through tactical doctrine to become the most effective combat forces afloat. The precise operations and tactics executed during war support the naval doctrine that will hopefully yield the greatest success in battle. Dominance of the sea and power projection ashore will inevitably result in the sinking of warships, mining of harbors or striking at strategic centers of gravity. Understanding the environmental impact of these evolutions, naval commanders have an obligation to weigh the expected and necessary environmental impact of the evolution against meeting the military objective. However, to what extent must the commander maneuver to avoid a wildlife refuge? Will a commander be required to select limited precision munitions over "dumb" weapons because of possible collateral damage to the environment? In war, to fight and win will always be of primary concern. Therefore, commanders must fight without unnecessary uncertainty of the tactical options available. The law of war, over time, has evolved to include sanctuaries during armed conflict which have the general support of the international community. With due regard to the law of war, commanders must follow the doctrine they have applied in training in order to optimize their chances of success in conflict.

Targeting, as with doctrine and tactics, requires the utmost clarity in order to meet military objectives. Again, the law of war has established sanctuaries such as cultural locations, hospitals and religious monuments, and has prohibited targets such as dams-which if severely damaged could unleash forces which would create extensive collateral damage. Any alternative targets selected by virtue of environmental concerns must be weighed against the consequences and impact those alternatives may have on the success and risks of the entire military operation. History has many examples of significant military targeting decisions which were made with due regard to humanitarian concerns and which changed the course of the battle. Environmental damage can be minimized through cognizance of environmental concerns. But it should remain clear that in war there are no absolutes; but winning is almost everything.

Weapons

It goes without saying that our naval forces must be properly trained and equipped to fight and win the nation's wars. Naval forces must be provided with those weapons which will give our forces the clear advantage in conflict. With the

scaling down of our naval forces, it is more important now than ever to field munitions which can do the job effectively with fewer numbers. Our current arsenal of strike weapons, over-the-horizon (OTH) missiles, naval gun projectiles and mines are moving towards precision applications which, by definition, will reduce collateral damage to the environment. However, less damage to the environment is a fallout from developing precision munitions and not the key factor in their development. The weapon development process currently analyzes potential environmental consequences with respect to applicable laws and regulations pertaining to pollution, hazardous material and ecological impact.[4] Full compliance with these regulations can lead to excessive cost and or modifications to the weapon. We must, therefore, seek a balance between optimum weapon performance and total environmental compliance. Blast effects, heat, and residual by-products from fuel or explosives must be considered in the development of weapons to ensure that they can first meet the capability requirements. It should continue to be our primary concern that we provide our fleet the arsenal needed to inflict high levels of damage on hostile forces in order to bring conflict to a decisive, early conclusion and minimize risk to our forces. An early conclusion also can reduce death, destruction and environmental damage.

Conclusion

Environmental regulations, foreign and domestic, must be clearly written so as not to be misinterpreted by local or state agencies or by the international community, nor to place unwarranted restrictions on naval forces beyond the intent of the regulations. Mobility is fundamental to naval forces; both in peace and war. Regulations that restrict transits of naval vessels due to environmental concerns ignore the importance of mobility and freedom of navigation to naval forces in crisis, peacetime operations and training. Although the need to protect the environment is clear and widely accepted, international regulations that place absolute prohibitions on environmental impact will probably receive minimum support and inconsistent compliance from countries with significant military forces. As a practical matter, application of environmental regulations to the wartime operations of military forces must recognize that avoiding environmental impact cannot be the sole consideration. But military commanders can legitimately be expected to show regard for avoiding *unnecessary* environmental damage in the conduct of their operations.

The U.S. National Military Strategy is built upon the three pillars of peacetime engagement, deterrence and conflict prevention, and fighting and winning our nation's wars.[5] Naval forces, in support of this strategy, will be forward deployed, and manned, equipped and trained to fight and win.[6] The naval imperatives of realistic, demanding operational training, unimpeded mobility at sea, proven warfighting doctrine and effective weapons are crucial

to the success of naval forces. Environmental regulations that infringe on these naval imperatives could seriously limit the Navy's ability to carry out national strategy. In essence, naval forces, by their forward and credible capability, act in a preventive role against war... and the environmental damage that is so involved.

Notes

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1. U.S. Department of Defense, *National Military Strategy* (1995), at pp. 9-12.

2. U.S. Department of the Navy, *Warfighting*, FMFM 1 (1989), p. 3.

3. U.S. Department of the Navy, *Naval Warfare*, NDP 1 (1993), p. 8.

4. U.S. Department of the Navy, Chief of Naval Operations Instruction 5000.42D (1993), Annex E, *OPNAV Roles and Responsibilities in the Acquisition Process.*

5. *Supra* n. 1, at i-ii.

6. *See* U.S. Department of the Navy, *From the Sea* (1992).

Chapter V

The Army and the Environment: Environmental Considerations During Army Operations

Brigadier General Joseph G. Garrett III, U.S. Army*

Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after they occur.

General Guilio Douhet, 1920[1]

In the aftermath of the Gulf War and the subsequent U.S. military operations in Somalia and Haiti, governments and international organizations have renewed the debate concerning military operations and their effect on the environment. Via CNN, Americans and the world viewed environmental damage caused by Iraq's demolition of Kuwaiti oil wells and the deliberate release of oil into the Gulf. In response, allied military forces conducted precision air strikes in an effort to stop the flow into the Gulf and to extinguish oil well fires. The consequences of these events will effect natural resources for decades.

Likewise, allied forces during Operation Desert Storm conducted the largest land combat campaign since World War II. The mobilization, deployment, and combat operations leading to eventual destruction of the Iraqi forces had a significant impact on the environment. As an example, U.S. forces fired 11,000 depleted uranium rounds during Operations Desert Shield and Desert Storm. Due to the better armor piercing capability of depleted uranium munitions, the combat power of the U.S. military was enhanced by firing these rounds from Army and Marine Corps tanks and U.S. Air Force attack aircraft. However, if left on the battlefield, uranium, a radio-active heavy metal, may result in environmental damage, as well as physiological effects to soldiers and noncombatants.[2]

What is the long-term environmental impact of these events and to what extent should military forces consider these as factors during the planning and execution of military operations? In peacetime, environmental compliance is paramount. To what extent will environmental considerations apply during war? How should the Army consider these issues in its doctrine and training?

Policy makers, academia, and environmental organizations may have a distorted sense of the environmental constraints that can realistically be placed on

commanders during combat operations. The purpose of this paper is to examine the extent to which environmental considerations should be a factor in Army operations across the spectrum of conflict.

Part I of this paper examines the Army's mission, what it must be able to accomplish to be successful on the battlefield, and the possible environmental impacts of those actions. Part II concentrates on how environmental considerations are examined during the Army's decision-making process. The final portion of this paper, Part III, addresses what initiatives the Army is taking to integrate environmental considerations into its training and doctrine.

Defining the Environment

Military doctrine defines the battlefield environment as specific features or activities requiring further analysis, the physical space where they exist, and how these features may influence courses of action or commanders' decisions. For purposes of this paper, the definition of environment is broadened to include the earth's human ecosystem, both physical and biological systems, that provides the resources necessary to sustain productive human life: clean air, clean water, healthy surroundings, and sufficient food.

PART I - THE ARMY AND LAND COMBAT

> The United States Army exists to support and defend the Constitution of the United States. It does that by deterring war and, if deterrence fails, by providing Army forces capable of achieving decisive victory as part of a joint team on the battlefield — anywhere in the world and under virtually any conditions.
>
> Field Manual 100-5
> *Army Operations*

Decisive Victory

The Army must be capable of decisive victory in full-dimensional operations. This encompasses employing all means available within the laws of war to accomplish any given mission across the full range of possible operations, both in war and in military operations other than war (MOOTW).

To achieve victory, the Army must maintain the capability to put overwhelming combat power on the battlefield to defeat all enemies through a total force effort. Army forces must be of the highest quality, able to deploy rapidly, to fight, to sustain themselves, and to win quickly with minimum casualties.

Our warfighting doctrine reflects the nature of modern warfare. It applies the principles of war and combat power dynamics to contemporary and future battlefields within the strategic policy direction of our government. [3]

Application of Combat Power

> Army forces in combat seek to impose their will on the enemy; in operations other than war, they seek to alter conditions to achieve their purpose. Victory is the objective, no matter the mission. Nothing short of victory is acceptable.
>
> Field Manual 100-5
> *Army Operations*

The Army's role is to gain victory on the battlefield through the swift, overwhelming application of maximum available combat power. Combat power is a destructive action which must be focused to minimize collateral effects and to promote the peace which must follow. The objectives for its employment must be clear, achievable, and understood by leaders at all levels.

Combat power is created by combining the elements of maneuver, firepower, protection, and leadership. Overwhelming combat power is the ability to focus sufficient force to ensure success and deny the enemy any chance of escape or effective retaliation. Our objective is to kill, wound, capture, or render the enemy incapable of influencing future battlefield events. If we are successful, the enemy is frozen by fear and uncertainty, confused, and isolated. Overwhelming combat power is achieved when all combat elements are quickly brought to bear, giving the enemy no opportunity to respond with a coordinated or effective response.

Commanders seek to apply overwhelming combat power to achieve victory at minimal cost. They strive to convert the potential of forces, resources, and opportunities into actual capability through violent, coordinated action at a decisive time and place. Army commanders multiply the effects of combat power through the integrated efforts of combat (infantry, armor, artillery, air defense, aviation), combat support (engineers, chemical, military police), and combat service support (logistics, medical), units as well as support provided by assisting Air Force, Marine Corps, and Navy forces. Firepower provides destructive force. It is essential in defeating the enemy's ability and will to fight.[4]

Environmental Impacts During Combat Operations

> Kindhearted people might of course think there was some ingenious way to disarm or defeat an enemy without too much bloodshed, and might imagine this is the true goal of the art of war. Pleasant as it sounds, it is a fallacy that must be exposed; war is such a dangerous business that the mistakes which come from kindness are the very worst.
>
> Karl von Clausewitz[5]

Environmental damage is an inescapable consequence of combat operations. In ancient times, the massing of armies destroyed the harvest and turned the battlefield to mud. In recent times, the destructive power of weaponry and maneuver has dramatically increased the environmental impacts that result from military operations. These impacts are magnified by the exponential expansion of the world's population, our intensive use of natural resources, and the systemic destruction and fragmentation of habitat world-wide by urbanization, agriculture, mechanized land clearing, and transportation systems. Consequently, the environmental effects of war are more devastating and proportionally greater than at any time in history.

As Clausewitz warned, there is no way that war can be made "nice." When a nation strives to make war "nice," or accepts limitations on the use of force beyond those required by the law of war, it does so at its own peril. A less-moral nation will take advantage of its opponent's constraint, often to the detriment of the civilian population in the battle zone, as well as the army fighting with restraint. The Vietnam War is a painful example of this mistaken thinking. [6]

For example, during the 1968 Battle of Hue in Vietnam, Marines were tasked with a three-fold mission: destroy as many of the enemy as possible, minimize casualties, and minimize collateral damage to the historical city. Formerly the imperial capital of united Vietnam and the center of Vietnamese cultural and religious life, Hue became an important symbol in the struggle for dominance of Indochina. Marines were instructed not to use heavy weapons in order to preserve the ancient city. The enemy capitalized on America's restraint by forcing the Marines into a bloody, house-by-house battle. As the number of friendly casualties increased to a devastating level, the weapons restriction was lifted and the city was secured. [7]

Impacts on the Environment

Actions that inflict environmental impacts during the conduct of war can be divided into three broad categories:

- Collateral damage
- Wanton, unnecessary impact
- Modification of the environment

Collateral damage results from military actions to achieve strategic, operational, or tactical objectives during armed conflict. The ultimate objective of each commander is to achieve victory over the enemy at minimal cost to friendly forces through the application of overwhelming combat power.

Two of the principal components of combat power are maneuver and firepower. Each exacts a toll on the environment and the impacts of protracted warfare on the environment are inherently destructive. Off-road maneuvering of armored, tracked vehicles such as tanks, personnel carriers, and self-propelled artillery can

inflict extensive damage on sensitive ecosystems. Concentrating firepower on enemy targets can decimate habitat. The destruction of enemy targets such as fuel storage areas and munitions stockpiles results in the release of hazardous substances and pollutants into the environment, contaminating the land, the water, and the air. Unintended collateral damage to other facilities, such as waste water treatment plants, also can result in additional pollution.

The principles of war are the enduring bedrock of Army doctrine. Their application enables the Army to achieve quick and decisive victory. Environmental considerations should not obstruct the application of the principles of war during armed conflict. Environmental restraints should not increase the cost of victory to friendly forces, the probability of a prolonged conflict, or the probability of an unfavorable outcome. Take, for example, the principles of maneuver and surprise. By maneuver we place the enemy in a position of disadvantage through the flexible application of combat power. Maneuver is dynamic warfare that rejects predictable patterns of operations. By surprise we strike at a time or place or in a manner for which the enemy is unprepared. Commanders combine variations of tactics and methods of operation as well as deception to surprise the enemy with the unexpected application of combat power.

Victory requires that Army commanders have maximum flexibility to maneuver against and surprise the enemy. Restricting military operations to avoid ecologically sensitive habitat, or imposing a no-fire zone because of a target's potential to pollute, could provide the enemy with the ability to predict our actions. This allows him to protect his forces from attack and prolong the war.

During combat operations, emphasis must be placed on mission accomplishment. The goal of minimizing environmental impacts is best achieved by applying the principles of war to achieve quick, decisive victory. Unavoidable environmental impacts necessary and proportional to such a response must be allowed. Restricting the application of combat power to predictable patterns of behavior based on environmental considerations must be avoided.

Wanton, unnecessary impact consists of actions that inflict environmental damage that cannot be justified by military necessity. This is the type of damage most recently associated with Iraq's actions in the course of the Persian Gulf War. During its occupation of Kuwait, Iraq set Kuwaiti oil fields ablaze and fouled the waters of the Persian Gulf by releasing millions of barrels of crude oil into the environment. These activities violate Article 55 of Hague Convention IV, which requires belligerents to safeguard the real property of hostile States and to administer such property in accordance with the rules of conflict.[8] Additionally, Article 51 of the Fourth Geneva Convention[9] forbids any destruction of real property unless it is absolutely necessary for the conduct of military operations. The United States and military services condemn such conduct, which is excessive,

unnecessary, and only peripherally related to achieving strategic and tactical military objectives.

Modifications to the environment consists of actions that are environmental modification techniques which cause widespread ("encompassing an area on the scale of several hundred square kilometers"), long-lasting ("lasting for a period of months, or approximately a season"), or severe damage ("involving serious or significant disruption or harm to human life, natural or economic resources, or other assets") intended to gain a tactical advantage. These actions are addressed by the 1977 Environmental Modification Convention.[10]

Disciplined Operations

War is tough, uncompromising, and unforgiving. The Army operates with applicable rules of engagement (ROE), conducting warfare in compliance with international laws and within the conditions specified by the commander. The ROE specify the circumstances under which forces may engage the enemy. The Army applies the necessary combat power to ensure victory through appropriate and disciplined use of force.

Exercising discipline during operations includes limiting collateral damage which is the inadvertent or unavoidable damage occurring as a result of actions by friendly or enemy forces. Discipline begins with trained leaders whose personal example, standard of conduct, concern for soldiers, and loyalty to subordinates creates well-disciplined units and proper conduct of battlefield operations. Army Field Manual 27-10, *The Law of Land Warfare*, provides guidance to commanders on international law and the Geneva and Hague Conventions. It also governs appropriate soldier conduct in war.[11] Field Manual 41-10, *Civil Affairs Operations*, provides guidance on control and treatment of displaced civilians.[12]

A nation that disregards the human rights of individuals makes warfare unnecessarily harsh, increases the resolve of its enemy, and changes the nature of the conflict. How the Army fights is a mark of what it is and the principles for which it stands. Laws of war are only effective in reducing casualties and enhancing fair treatment of combatants and noncombatants as long as trained leaders ensure those laws are obeyed. The commander ensures the proper treatment of prisoners, noncombatants, and civilians by implementing training programs that reinforce the practice of respecting those laws and ROE.[13]

Law of war training, conducted in Army service schools and reinforced by unit commanders, emphasizes the military and political reasons for respect for the law:

- Discipline in combat is essential.
- Violations of the law of war detract from a commander's accomplishment of his mission.
- Violations of the law of war frequently lead to a loss of public support.
- Violations of the law of war may arouse an enemy to greater resistance.

Both in training and in combat, the Army strives to use sound environmental practices. Many of these are also wise tactical, medical, and operational security practices. For example, safe fuel handling, preventive vehicle maintenance, and proper disposal of solid/hazardous waste are sound environmental and tactical considerations that carry over from training into combat and operations other than war.

In some respects, protecting the natural environment may seem to run counter to the warrior culture and may even be regarded as an impediment to battlefield success. The realities of the 21st Century, however, require the incorporation of an environmental ethic into how the Army plans its battles. Military commanders have an obligation to avoid unnecessary damage to the environment whenever possible.

Environmental dilemmas faced by a commander during combat must be weighed with other considerations such as desired end-state and force protection. The warfighting staff considers these potential impacts during the decision making process. Part II of this paper explains how environmental considerations fit into the planning process.

PART II - ENVIRONMENTAL CONSIDERATIONS AND THE DECISION MAKING PROCESS

Army Decision Making Model

Before additional environmental limitations are placed on commanders, it is important to understand how environmental considerations fit into the Army's decision-making process.

The Army has traditionally viewed military decision-making as both science and art. Many aspects of combat operations, such as movement rates, fuel consumption, and weapons effects, are quantifiable. Such aspects make up the "science" of war. However, the Army cannot quantify facets like the impact of leadership, the complexity of modern operations, and the uncertainty regarding enemy intentions.

A commander continually faces situations involving uncertainties, questionable or incomplete data, and several possible alternatives. As the primary decision maker, the commander, with the assistance of the battle staff, must not only decide what to do and how to do it, but must also recognize if and when a decision must be made.

The Army teaches commanders and staff to use a systematic approach to decision-making. It fosters effective analysis by enhancing the application of professional knowledge, logic, and judgment.[14] These steps guide the staff to:

1. Recognize and define problems.

2. Gather facts and make assumptions to determine the scope of, and the solution to problems.

3. Develop possible solutions.
4. Analyze each solution.
5. Compare the outcome of each solution.
6. Elect the best solution.

Intelligence Preparation of the Battlefield

To gather information for the first two steps of the decision-making process, the staff conducts the Intelligence Preparation of the Battlefield (IPB). This review is a continuous process of analyzing the threat and area of operations, in a specific geographic area. It is designed to support the decision-making process.

During the IPB process, the staff identifies significant characteristics of the area for future analysis. These specific features may influence available courses of action or the commander's decision. For example, during humanitarian assistance operations, the activities of civilian relief organizations might be a significant characteristic of the battlefield. Similarly, during support to counter-drug operations, significant characteristics might include the production of narcotics or the trading of weapons. For both combat operations and MOOTW, it is during this phase of the IPB process when environmental considerations are developed.[15]

To better understand how environmental considerations are integrated into the planning process, consider this scenario. During war, an armor commander is given a mission to destroy an enemy force and seize their defensive location which is in a key position along the allied axis of advance. After receiving the mission, the commander's staff will conduct a mission analysis of the operation. As said earlier, the foundation for this mission analysis is the information gathering phase, the IPB process.

As the staff compiles information about the mission, it discovers that the enemy's position is near a fuel storage facility. The facility is directly above an isolated water shed which supplies water to a significant portion of the local population. They realize that the water shed may be contaminated if the fuel storage tanks are ruptured. The staff notes this dilemma and continues to formulate a plan. They then prepare multiple courses of action to allow the commander to weigh the many options for the mission.

When all the additional courses of action are developed, the staff briefs the commander on the different ways his force could proceed with the attack. As a part of this briefing, the staff will address the facts and assumptions that were considered in formulating the various options. In this scenario, the staff listed as a fact that the water shed is directly below the enemy's position. As an assumption, they indicate that if the position is attacked, the tanks will be ruptured and the water shed will be contaminated.

The significance of the enemy location near the fuel storage area may prevent the armor force from simply attacking the position. The commander examines

each course of action and weighs the significance of each one in terms of elements key to success, similar to the principles of war discussed in Part I. Based on the evaluation of each plan, the commander selects an option and directs the staff to develop the operational plan.

Due to other operational constraints, the commander may elect to attack the position, thereby causing environmental damage. Just as likely, if other viable options exist, the commander may choose another course of action and protect the local population's water supply.

Staff Organization and Operation

The Army has historically integrated other factors, such as protection of noncombatants and historical/cultural sites, during the planning process. Many of the division and brigade staff elements have some environmental planning and oversight responsibilities. These responsibilities are identified in Field Manual 101-5, *Staff Organizations and Operations*.[16] Take for example the protection of cultural/historical sites and artifacts. The staff elements responsibilities include the following:

- Civil Affairs Officer (G5/S5) - Together with the Intelligence Officer, determines the location of archives, monuments, and art objects of value to the U.S., allies, or civil government. As appropriate, recommends to the Operations Officer those items which, because of political, cultural, or economic value, justify use of combat elements for their seizure and security. As appropriate, recommends to the commander the disposition of each item.

- Intelligence Officer (G2/S2) - Coordinates with the Civil Affairs Officer in locating and searching archives. May provide archives team for intelligence search. Returns archives after intelligence processing and recommends the safeguarding of archives.

- Operations Officer (G3/S3) - Prepares recommendation for adjusting tactical plans to prevent destruction of arts, monuments, and archives. Assigns special missions to tactical units to secure and safeguard such objects.

- Personnel Officer (G1/S1) - Coordinates with the Public Affairs Officer appropriate instructions for military personnel concerning treatment of arts, monuments, and archives.

- Provost Marshal (PM) - Coordinates with host-nation military and civilian police in concert with the Civil Affairs Officer.

- Fire Support Coordinator (FSCOORD) - Receives locations of the artifacts and sites from the Operations Officer to prevent destruction by fire support, such as artillery.

- Public Affairs Officer (PAO) - With the Civil Affairs Officer and the Personnel Officer, uses command information channels to release information on appropriate treatment of arts, monuments, and archives.

• Staff Judge Advocate (SJA) - Provides legal advice to ensure compliance with the law of armed conflict.

A similar process would be taken for natural resources. After reviewing the staff's actions for cultural/historical sites and artifacts, consider again the previous example of an enemy's position near a fuel storage facility. The staff works to *quickly* determine if the tactical value of the mission out-weighs other environmental factors, such as the contamination of the local water supply. The staff considers many factors including the law of war, the commander's intent, and the rules of engagement. They present their recommendation to the commander for consideration. Regardless of the type of consideration—whether a tactical factor, such as ammunition availability, or an environmental factor—the process is still the same.

This may require technical assistance from other members of the staff to fully review and integrate any environmental considerations. The Staff Engineer is the commander's terrain expert. He can identify problem areas and predict potential impact. Similarly, the Division Surgeon is the medical advisor to the staff and can identify the potential health impacts of any proposed action. The G-5 or civil affairs section can assist the SJA in determining the impact on non-combatants. Since most of the environmental considerations will be raised during the IPB process, the commander's Intelligence Officer can also help the staff in bringing all the pieces together and weighing their significance. The Intelligence Officer can also predict possible actions the enemy may take to use the environment to his tactical advantage.

Doctrinal integration of environmental considerations is a significant focus of the Army's environmental strategy. The Army is taking proactive steps, both in doctrine and training, to prepare our soldiers and leaders for the increasing environmental challenges of Army operations.

PART III - INTEGRATING ENVIRONMENTAL CONSIDERATIONS INTO DOCTRINE AND TRAINING

> Full integration will occur when everyone—leaders, soldiers, families—automatically includes environmental impact considerations in the planning and execution of activities... Training and doctrine are the key. We have instilled the warfighting ethic throughout the force, and we are now instilling an environmental ethic as well... We are incorporating environmental considerations in our doctrine...in our training... in our decision-making process.
>
> *General Gordon R. Sullivan, U.S. Army*[17]

Commander's Intent

The U.S. Army Environmental Strategy into the 21st Century, the Army's concept for environmental excellence, was signed by the Secretary and the Chief

of Staff of the Army in November 1992.[18] The strategy stated, "Leadership is the key to success. Each of you in the chain of command is responsible for ensuring that the U.S. Army's environmental strategy is implemented and that environmental stewardship is an integral part of everything you do."

The strategy provides policy and objectives in the various areas of environmental stewardship as well as a vision for the future. It also identifies four critical elements pertinent to doctrine and training:

- Commit the chain of command.
- Organize for success.
- Spread the environmental ethic.
- Train and educate the force.

Commit the Chain of Command

Guidance from the senior leadership is clear and sufficient. The Secretary of the Army and Chief of Staff have committed the chain of command to this mission. A parallel can be drawn between the Army's effort to integrate environmental considerations with the proven initiatives of the Army's safety program. The success of the safety program, as with the environmental program, hinges on commitment of the chain of command. Safety briefings cannot solve the Army's safety problems. The number of safety-related incidents decreased when safety became a commander's program and was integrated into the way we do business. Likewise, to decrease the impacts of Army operations on the environment, we must integrate environmental considerations into our everyday operations.

Organize for Success

In 1993, the Army's Training and Doctrine Command (TRADOC) designated the U.S. Army Engineer School as the executive agent for the development and integration of environmental doctrine and training as they apply to tactical units and the Army in the field. Their action plan was created with the assistance of Department of the Army-level environmental staff and the other Army service schools and is delineated in five steps:[19]

- Establish procedures for incorporating environmental protection and enhancement into Army doctrine.
- Determine requirements for environmental training programs.
- Determine procedures for conducting individual and collective environmental task analysis.
- Determine resources needed to implement the plan.
- Establish milestones.

We must now take the action plan and determine the what, where, when, and how soldiers will be trained:

- What (doctrine and specific tasks).
- Where (resident, non-resident, unit sustainment).
- When (level of military education).
- How (type of instruction).

Spread the Environmental Ethic

Field Manual 22-100, *Military Leadership*,[20] defines ethics as "principles or standards that guide professionals to do the moral or right thing which should be done."

Stewardship is a key element of the Army's environmental ethic. Our Army is charged with protecting and defending the nation, to include safeguarding the environment. In addition, the Army has been entrusted with 12 million acres and many cultural and natural resources. The American people expect the Army to exercise good judgment in the use and management of those resources. They expect the Army to be a good steward of the assets entrusted to it.

Train and Educate the Force—Doctrinal Integration

Environmental issues play an ever-increasing role on the battlefield, and they are becoming even more significant in conducting military operations other than war. Army units now face an incredible mix of operational requirements. Recent deployments have placed small units and junior leaders in critical situations where there are few rules and personal judgment is the best guide. For these reasons, the Army must provide environmental guidance in every level of doctrine.

Army operational doctrine is comprehensive. It integrates hundreds of subjects into a tightly crafted collection of writings that provide guidance to soldiers at every level. Mapping the requirements of the Army's environmental strategy into operational doctrine will entail a gradual process of introducing concepts and norms into capstone doctrinal manuals while simultaneously developing specific requirements in procedural publications.

To be fully integrated into Army planning, training, and operations, the appropriate level of environmental considerations must be incorporated into capstone field manuals. The following capstone manuals will drive subordinate doctrine, provide the impetus for training and professional education, and begin the long-term process of preparing for the environmental requirements of the 21st century:

- FM 100-5, *Army Operations*.[21] This capstone operational doctrine underpins all of the Army's doctrine, training, leader development, organization, materiel, and soldier concerns. Environmental values and considerations should be included in the view of war, the strategic context, the training and readiness

challenge, military operations other than war, and the physical dimension of combat.

- FM 100-1, *The Army*.[22] The definition of the Army environmental ethic and environmental considerations belong in this source book for strategic doctrine.
- FM 22-100, *Military Leadership*.[23] This manual should discuss the environmental component of ethical leadership.
- FM 25-100, *Training the Force*[24] and FM 25-101, *Battle Focus Training*.[25] The Army's training function is directly affected by environmental factors. The training management cycle should include segments on land and endangered species management, range restrictions, training area carrying capacity, and noise.
- FM 100-10, *Combat Service Support*.[26] Supply, maintenance, and field service-support activities generate large quantities of waste. Petroleum storage and distribution systems are particularly prone to causing environmental problems. Logistical planning includes many environmental considerations such as health service support and waste disposal.
- FM 101-5, *Staff Organizations and Operations*.[27] Many of the staff elements have some environmental planning and oversight responsibility. These positions must be identified and their environmental functions integrated throughout the entire staff. This manual also outlines the Army's decision-making process.
- FM 34-130, *Intelligence Preparation of the Battlefield*.[28] As explained in Part II of this paper, the IPB process needs to specifically include the investigation of environmental considerations.

Train and Educate the Force—Environmental Training

"Integration" is the philosophy used in designing environmental training programs. Rather than developing stand-alone courses, the Army integrates environmental considerations into all levels of existing training.

Individual and Collective Tasks

The Army is striving to integrate environmental considerations into military occupational skills (MOS) training. Integration is more urgent for some skills than others. For example, fuel handlers, heavy equipment operators, mechanics, and heavy weapons handlers require immediate attention. To meet this need, the Army established an environmental work group composed of members from its service schools. The work group representatives ensure environmental training is incorporated into their school's training programs and doctrinal manuals.[29]

The integration efforts of the Combined Arms Support Command (CASCOM), a member of the TRADOC Environmental Work Group, are a major success story. CASCOM is responsible for the service support branches, including Quartermaster, Ordnance, Transportation, and Missile/Munitions Schools.

CASCOM recently released the Soldier Training Plan (STP) for MOS 77F, Fuel Handler. The potential environmental impacts from fuel handlers are obvious and CASCOM considered this when defining the tasks, conditions, and standards. Their new manual is an excellent example of how environmental considerations can be incorporated into operations without sacrificing mission accomplishment.[30]

Resident Training:

To further support environmental education, the Army directed its service schools to include environmental instruction in their resident training programs. These resident courses range from initial entry (basic training) through the Sergeants Major Academy, and from officer precommissioning to precommand courses.[31]

The environmental instruction contains the baseline environmental knowledge that all soldiers of that rank will receive. The students must identify the Army and unit environmental programs, identify applicable environmental laws and Army regulations, describe soldier and leader duties, and develop the environmental ethic.

SUMMATION

The Army must be capable of decisive victory in full-dimensional operations. This encompasses employing all means available within the laws of war to accomplish any given mission, across the full range of possible operations, both in war and in military operations other than war.

The acceptable level of these impacts is not finite and will vary based on the intensity of the conflict. The Army applies the combat power necessary to ensure victory through an appropriate and disciplined use of force. The Army conducts warfare in accordance with international treaties, the rules of engagement, and guidance from commanders.

To minimize the collateral damage, the warfighting staff evaluates environmental considerations early in the decision-making process. The commander has the challenging task of weighing environmental considerations with other operational concerns.

The Army is integrating environmental considerations into training and doctrine. This begins by establishing an environmental ethic and an understanding of the laws of war.

A sound environmental ethic and specific doctrinal guidance will prepare our soldiers and leaders for operations in the 21st Century and the challenges it presents.

The Army faces a unique set of challenges as it adapts to a world that has changed more broadly and fundamentally than at any time since the end of WWII. The Army must continue to adapt to ensure success in a rapidly changing strategic

environment. Now, more than ever before, it serves as a strategic Army, a land force on which the United States and its allies rely to meet global challenges.[32]

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* Director of Strategy, Plans, and Policy, Office of the Deputy Chief of Staff for Operations and Plans, Department of the Army

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Chapter VI

Protection of the Environment During Armed Conflict and Other Military Operations

Major General Robert E. Linhard, U.S. Air Force*

"When the war starts all bets are off." This is the consensus most environmental managers hold once a military action is under way. Several Air Force environmental managers we spoke to agreed. On the one hand, the Air Force has made an unwavering commitment to cleaning up and protecting the environment; on the other hand, military operations are capable of unprecedented destruction. On the surface it would appear that we are stuck with a dichotomy. In public statements, in our spending and in our day-to-day operations, the Air Force sets a high standard for environmental consciousness. Yet, during Operation Desert Storm the environmental damage was unprecedented. Environmental destruction is a fact of war and protecting the environment cannot stand in the way of military victory. This paper will address the Air Force's unwavering commitment to protect the environment, review the environmental destruction that occurred during Operation Desert Storm, and suggest possible ways that environmental damage might be mitigated during military operations.

Air Force Commitment to Environmental Protection

Air Force conservation programs can be traced back to World War II, to air base construction by the US Army Corps of Engineers for the Army Air Corps. In those days, our programs focused on soil erosion and dust control around the airfields. It was not until the sweeping environmental cleanup and hazardous waste control legislation of the 1980's that the Department of Defense undertook a multi-billion dollar installation restoration program.[1]

In 1991, Air Force Chief of Staff, General Merrill McPeak made protection and enhancement of natural and cultural resources an environmental leadership goal for the Air Force.[2] As recently as March 1995, Secretary of the Air Force Sheila Widnall, referring to our military training areas, said:

> We know we have an obligation to the American People to practice and promote positive resource stewardship . . . The Air Force is the lead agency in developing the first course in managing natural resources in military lands . . . We recognize that this is not enough. We must establish new policies to fully integrate our stewardship responsibilities with the military mission.[3]

In April of this year, while presenting the Air Force Annual Environmental Awards, Air Force Vice Chief of Staff, General Thomas Moorman, asserted that the Air Force is a model for other government agencies. He said:

> The Air Force is proactive in environmental clean up . . . Our goal is simple: no violation of federal standards. To do this, we have made environmental compliance a mind set for our daily operations . . . In our acquisition programs we have reduced our purchasing of toxic substances and made a deliberate decision not to incorporate environmentally damaging substances into our future purchases. Also, we established the Commanders' Environmental Leadership Course to train our commanders on how to recognize and solve environmental problems.[4]

Commitment to the environment at this level comes at a cost. Impacts on spending levels for cleanup, compliance, normal operations and even acquisitions have been substantial. Increased spending is a good news, bad news story, with a happy ending. Throughout the 1980s, we increased spending on compliance and cleanup. We are already seeing benefits in our compliance and pollution prevention programs. Spending has peaked and our investments are paying off.

On the acquisition front, the story is similar. A recent study was conducted on the impact environmental factors are having on the acquisition process. Offices that participated in the study said they are required to consider almost every aspect of the environment. Examples include: ozone depleting substances, toxins, volatile organic compounds, noise, petroleum products, heavy metals, endangered species, radioactive materials, historical or cultural site preservation, respirable fibers, thermal waste, and others. Seventy percent of the program management offices reported adverse impacts on their programs attributed to an environmental issue. Primarily, the impacts are increases in costs and excessive delays.[5] The good news here is most often in the ultimate result. Numerous success stories exist. For example, the Joint Primary Aircraft Training System (JPATS), the replacement for the T-37 aircraft, has no ozone depleting substances and is almost free of toxins and dangerous heavy metals. Similar success stories can be told of the C-17, the F-16 and the F-22 aircraft.

The Dilemma of Environmental Protection and Military Operations

Clearly, the Air Force is committed to protecting the environment. But how are we addressing the environmental damage due to war and training for war? At least one author has seen some humor in this apparent dichotomy. In a recent article in *The Washington Times* Mario Mozzilo noted:

> The ferocity of our nation's fighting personnel has been ameliorated by other species . . . Pressure by environmental managers and the Environmental Protection Agency (EPA), has resulted in the Pentagon agreeing to stop M-1 super tanks and Bradley Armored Personnel Carriers from roaring through the forest and blasting

> the hillsides at Fort Bragg, N.C. Why? It seems this activity disturbs the nesting habits of the red-headed woodpecker . . . Public officials have closed some 25,000 acres of these military reservations to maneuvers. One might ask what is a military reservation for, if not to conduct military maneuvers? Or, why these guns are permitted to . . . kill humans in wartime but not annoy woodpeckers in peacetime?[6]

At least one point Mozzillo is trying to make is well taken. The Air Force is committed to protecting the environment, but we can use environmental programs to impact readiness. It is imperative that we consider all aspects of the environment when conducting our operations, to include war, but *not* to the extent that protecting the environment will inhibit our ability to successfully conduct operations or win a war. Damage to the environment during military operations, especially war, is inevitable. The Persian Gulf War stands as a recent reminder of war's destructive capability.

Operation Desert Storm Destruction

Through the eyes of television we learned, with the rest of the world, the true destructive nature of war. We also learned that environmental destruction during this conflict came in two forms; Saddam Hussein's deliberate destruction as an indirect way to achieve a military objective and the collateral environmental damage caused by Coalition forces while conducting military operations. The first case is a violation of international law. The second is apparently not. Laws of war reflected in custom and international agreements are problematic in this area. If the intent of the attacker is the destruction of enemy capabilities and not the devastating environmental side effects, then the environmental effects have to be considered as part of the traditional balancing of military necessity against foreseeable damage to noncombatants and civilian property. Where the expected collateral damage is not disproportionate, the attack is legal. Although outside the focus of this paper, it seems that Saddam Hussein's directive to deliberately spill millions of gallons of oil, blow up as many as 1,250 oil well-heads and leave 600 wells burning is a clear violation of international law. Primarily, his attack was on the environment. His secondary objectives were either to shut down desalinization plants or to destroy the economy of Kuwait.[7]

In contrast, United States and Coalition forces avoided environmentally sensitive targets. Nevertheless, the destruction by Coalition forces was significant and lasting. Susan Lanier-Graham, in her text *The Ecology of War* discusses the environmental damage of the Persian Gulf War:

> Environmental hazards following the Persian Gulf War are primarily the results of oil fires and oil spills throughout the Gulf region . . . Smoke from the burning oil contained polycyclic aromatic hydrocarbons and trace metals such as nickel,

> chromium, and vanadium, all of which are known, or suspected to cause cancer in animals and humans... The smoke contains sulfur dioxide and nitrogen oxides that collect in the atmosphere and return to the surface as acid rain. The area's sandy soils are not acid tolerant, making agricultural conditions worse... Water supplies are also in danger of contamination from acid rain... Besides the publicized damage from oil fires and the spills, there were numerous other environmental disasters... Prior to the war, Kuwait had a camel population of 10,000. They are now estimated at 2,000... The Kuwait City Zoo was destroyed by Iraqi soldiers... The bird population was decimated... and the damage to desert ecology, marine life is immeasurable. The thousands of military vehicles moving across the sand not only destroyed the fragile desert plants, but broke through the desert's natural crust that helps lessen problems of wind and erosion... One immediate result will be in the increased severity of dust storms... It has been estimated that as much as 25 percent of Kuwait's land surface has been devastated.[8]

Concern over environmental destruction during a military operation like Desert Storm takes a back seat to military objectives and protecting and taking care of lives. Once the war is over, the focus often shifts to the devastation and the need for remediation. Today, the United States and some of the Coalition countries are helping Kuwait clean up the residue and ravages of war. Working together, they are trying to ameliorate the ecological devastation that it caused.

> Reportedly thousands of tons of unexploded ordnance exist. There were more unexploded bombs than in other circumstances, because of the soft landing spot. Blowing and drifting sands make it impossible... to easily locate objects... Of the 88,500 tons of bombs dropped on Iraq, 17,700 tons, or as many as 20 percent may have never exploded... An estimated 1 million unexploded Rockeye bomblets litter the U.S. designated sector of the Kuwait desert; an area comprising 1,207 square miles of the desert the United States is responsible for clearing. The difficulty with removing the Rockeyes is that they are small and not located in any particular pattern... Experts estimate it could be forty years before the desert is considered safe... Another closely related problem is the ammunition fired from the A-10 aircraft and the M-1 tank... Both fire ammunition with depleted uranium projectiles... If the projectile hits a solid object, such as a tank, it disintegrates, leaving uranium dust. If the penetrator hits the ground it stays intact... the uranium, 8-10 lbs per projectile, remains in the desert... The Kuwaiti government has asked to have all of the depleted uranium projectiles removed from Kuwaiti soil... The price for clean up will be astronomical.[9]

Coalition governments have already begun the clean up.

What Can We Do?

As military planners, we can ensure positive steps are taken to consider the environment throughout the entire range of military operations. We need to take the next step forward in environmental awareness. Environmental analysis and

environmental planning should be incorporated into all of our plans. Additionally, as military operations are prosecuted (war or otherwise), environmental managers should become part of the process. During the operation, environmental managers should stay current on the weapons used and the destruction taking place (land, sea, air and species). Environmental analysis should continue throughout the operation with two primary concerns. First, what recommendations can be made to the decision makers, the leaders, to minimize permanent or lasting environmental damage and still accomplish the mission? Second, what will be required for eventual remediation of the area of operation? The idea here is not to advocate that environmental concerns be the primary focus. Rather, continued involvement by a knowledgeable environmentalist would ensure compliance with environmental laws and that the decision makers are aware of the environmental implications of their choices. Incorporating environmental managers into the process is our best option to minimize any permanent or long-lasting environmental damage.

Incorporating environmental planning and involvement will take time. Current operational and war plans are being thoroughly reviewed. However, for the most part, they do not contain an environmental section. One war plan recently reviewed addressed operations in a chemical, biological, and nuclear environment, but the environmental consequences of those operations were not specifically addressed. In another plan, similar capabilities were discussed in terms of potential enemy capabilities, but, again, an environmental review was not undertaken.

The Air Force is now in a transition phase. Our planning review guides need to be reviewed and updated. Likewise, the core directives we use to develop our plans should ensure we consider and manage the environmental impacts of our operations. We are almost there. An Air Force manual, entitled *Operation Plan and Concept Development and Implementation,* promulgated on April 4, 1994, includes an Appendix to the Civil Engineer Annex detailing environmental protection and compliance tasks to be addressed in Air Force unique planning.[10] Chairman of the Joint Chiefs of Staff Instruction entitled *Joint Operations Planning and Execution System, Volume II Planning Formats and Guidance* contains an extensive Environmental Assessment Appendix.[11] This Appendix requires a complete description of the contemplated military action. It discusses "major actions" and asks whether "significant harm to the environment or a global resource" will occur. In addition, this Instruction requires: analysis of options or alternatives, complete descriptions of the environmental settings (topology, vegetation, climate, wildlife, archeological and historic sites, water quality and air quality), the anticipated environmental impact of the operation and, finally, mitigation and monitoring. Although, this Instruction is still in draft, it will take us one large step closer to fully incorporating environmental planning, compliance and monitoring into our

day-to-day operations. Admiral Jeremiah, when Vice Chairman of the Joint Chiefs of Staff, stated that:

> Our mission of preparing for war will still come first, but with it should come the need to aggressively eliminate any permanently destructive effects our actions might have on the environment.[12]

It is clear, we will never be able to eliminate environmental destruction from our combat operations. Our commitment to the preservation and protection of the natural environment does not have to impede our operations or adversely impact our ability to win. Environmental involvement throughout our operations will simply provide decisionmakers with planning, prosecution and eventual clean up options: With full integration of our environmental commitment into our plans and operations, we can maximize our ability to achieve Admiral Jeremiah's goal of no permanent destruction to our environment.

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*Director of Plans, Deputy Chief of Staff, Plans and Operations, Headquarters, U.S. Air Force.

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Chapter VII

Panel Discussion: The Strategic Imperative

Brigadier General Walter B. Huffman, JAGC, U.S. Army: Good afternoon. I'm Walt Huffman, the Assistant Judge Advocate General of the Army for Military and Operational Law. I am the moderator for the first panel of the Symposium. I am not going to take much of your time with my own comments, but I would like to say that I think that this is the perfect way to start the panel presentations with our panel entitled, "The Strategic Imperative and The Impact On The Environment," that is, what the military must be allowed to do in order to win across the spectrum of conflict. I think even more important is that Professor Grunawalt and his people were able to put together a panel with the breadth of experience and expertise represented here this afternoon. Because most of us in this room are lawyers or academicians of some kind, it is most important that we understand more than anything else what we are trying to do here. If we do not produce something that is relevant to these folks, to the operators, to the warriors, if you will; if it is not something useful to them, if it is not something viable in the context of the operations and missions that they must plan and execute, then it is simply irrelevant and whatever we say will have no bearing on the real world of operations in the military.

I think the three presenters on this panel will tell you there are a number of things in the real world that the military can do in terms of its planning and in terms of sensitizing soldiers and commanders to environmental concerns and considerations. They will talk about developing a systemic approach to environmental problems and environmental issues in the operational mission, and they are going to talk about that across the entire spectrum of potential conflicts and operations.

Our first presenter is Rear Admiral William Wright, U.S. Navy, Assistant Deputy Chief of Naval Operations, (Plans, Policy and Operations). Admiral Wright commanded the *Wasp* Amphibious Task Force during the intervention in Haiti and had an opportunity to see an environmental disaster across an entire country—close up. He has served on the National Security Council Staff and with the Arms Control and Disarmament Agency; assignments that obviously have immediate relevance to what we will be discussing at this Symposium.

We have Brigadier General Walter "Skip" Garrett, U.S. Army. I might add that he has been selected for promotion to Major General. Skip is the Director of Strategy, Plans and Policy in the Office of the Deputy Chief of Staff of the Army, Operations and Plans. Skip commanded the 11th Air Defense Brigade during the Persian Gulf War, and spent a fair amount of time in the smoke that we talked

about in Kuwait. So he has experienced the effect of an environmental disaster on a military operation firsthand.

We also have Major General Robert Linhard, U.S. Air Force, Director of Plans, Office of the Deputy Chief of Staff, Plans and Operations. General Linhard has served as Special Assistant to the President for Nuclear Issues and Arms Control and has also chaired the U.S. Arms Control Support Group. Again, very relevant assignments to what we are going to be discussing today. Without taking any more of their time, I will turn the panel over to Admiral Wright, and ask him to make the first presentation.

Rear Admiral William H. Wright, IV, U.S. Navy: Thank you very much. Because it is right after lunch, I thought I would begin with a long stream of expletives, just to make sure everybody was listening but also to let you know what I think about trying to curtail military actions in conflict. But, now that I know that these proceedings are, word for word, being written down, memorialized and that they will be used in follow-on conferences, I am going to delete that and lead right into my presentation. I have a paper that covers aspects of the Navy's concern with further curtailment of our ability to effectively engage in war. I don't think I need to remind you that war is pretty much an all out affair. It ought to be bloody; it ought to be damaging; it ought to ruin just about everybody's day that is involved with it. I would say that if you are going to train for that kind of activity, you should not find your commanders second guessing their ability to be able to carry out a specific plan of attack. This is especially true if you believe the other commander is not thinking on the same wavelength that you are. Let me hit two items and then get off the net because I think the real value of this conference is not the long-winded papers that we put out but the type of exchange that goes on and, of course, the questions.

One, rules of engagement exist in the Navy today that have been around a long time. They constitute a very unique understanding between the commander and the young men and women that have to carry out the close-in actions; and they represent a very good dialogue over some very ticklish thresholds in engagements. As I was working up the *Saratoga* Battle Group, taking them out, it was very important for me to get face-to-face with our pilots and the commanding officers of our ships to talk through and watch their facial expressions as we talked about the "what if's" and about "how are you going to comport yourself?"; getting their answers and a little bit of a measure of how well they understood the written rules. But more importantly, finding out how they were going to act under pressure. I had traveling with me, and I have had on each of my staffs, a JAG officer who was first and foremost the man who represented my operational interests. He understood the dialogue that I was going through and he would also be the guy who would represent me during discussions about crossing various thresholds. As

we think about curtailments that involve the environment, that kind of rules of engagement dialogue is very important. I think the answer is not more rules. The answer, quite simply, is to create a culture of awareness; a sensing that you do not have to devastate the environment to accomplish the mission. That resides today in the Navy; we have those kinds of considerations.

You heard Admiral Jim Stark and the dilemma that we placed him in as a commander charged with a U.N. mandate that said, "use all means necessary to accomplish the mission." Words like that, which come down with these mandates, are not very helpful when you are trying to put constraints on the commander. But, mandates of that kind are great because they tell him that he is to get the job done.

Admiral Jim Stark, the operator, was faced with having to decide whether to put rounds into that ship. The accuracy of naval gunfire is not such that he could knock the rudder askew and turn the target 90 degrees so it heads off the coast. But, he had a sensing of what was being asked of him.

I would like to turn briefly to deterrence and the nature of war, the nature of conflict. There is an element of deterrence that resides in the mind of the individual decisionmaker we wish to deter. He ought to be thinking about what he holds dear, and maybe some of what he holds dear is avoidance of long-term devastation of his environment. So, as you all look at what we ought to foreswear, you are also dabbling with deterrence in its purest sense and that is, war should be devastating. We should be doing things of a preventive nature to cause that threshold not to be breached. To the extent that you lower that threshold by preserving some options, by foreswearing that we will not endanger his environment, you are not serving deterrence. Thank you, this completes my comment for today.

Brigadier General Joseph G. Garrett, U.S. Army: It is a pleasure to be here today and have a chance to talk to you. My appearance here is explained in a relatively simple chain of events. You invited my boss to speak. He decided I should come. I will tell you from the discussions this morning, I probably fall into the "wild-eyed warrior" category of people attending the conference today. I have no background in the legal field and no background in the environmental field. I have only been to Ottawa once in my life and I was not there for the conference. After having said all that, let me talk to you a bit about Army operations.

In the aftermath of the Gulf War and subsequent operations in Somalia and Haiti, governments and international organizations have renewed the debate concerning military operations and their effects on the environment. People are now asking a lot of questions that are very difficult for us to answer. What are the long-term environmental impacts of those events and to what extent should military forces consider these as factors during planning and execution of military

operations? In peacetime, environmental compliance is paramount. But, to what extent will environmental considerations apply during war? How should the Army consider these issues in its doctrine and training?

Today I hope to examine some of those questions with you. First, I will talk a little about the Army's mission; what it must be able to accomplish to be successful on the battlefield and the possible environmental impacts of those actions. I will also talk briefly about how we currently include environmental considerations in our decision-making process. Finally, I will highlight some steps we are taking to integrate environmental considerations into the way we do our daily business and into our doctrine and training.

I will start with the Army mission. The United States Army exists for one reason and that is to support and defend the Constitution of the United States. It does that by deterring war and, if deterrence fails, by providing Army forces capable of achieving decisive victory as part of a joint team on the battlefield, anywhere in the world and under virtually any conditions. To do this, the Army must be capable of decisive victory in full-dimensional operations. That encompasses employing all means available within the laws of war to accomplish our missions across that full range of operations, both in war and increasingly, in operations we call military operations other than war, or MOOTW.

Victory is gained on the battlefield through swift and overwhelming application of the maximum available combat power. And combat power necessarily involves destructive action. It is destructive to people, it is destructive to equipment and it is destructive to the environment. But, that combat power is focused to minimize collateral effects as much as possible and to promote the peace which must follow.

Army commanders multiply the effects of firepower and maneuver of Army forces by integrating the efforts of Air Force, Marine Corps, and Navy forces. Firepower produces destructive force but it is essential in defeating the enemy's ability and will to fight. There are no easy solutions. Environmental damage is an inherent consequence of combat operations. In ancient times, the massing of armies destroyed the harvest and turned the battlefield to mud. In recent times, the destructive power of weaponry has made the environmental impacts of war more devastating and proportionally greater than at any time in history.

As von Clausewitz warned, there is no way that war can be made "nice." When a nation strives to make war nice, or accepts limitations on the use of force, it does so at its own peril. A less moral opponent will take advantage of that restraint, often to the detriment of the battle zone's civilian population, as well as to the army fighting with restraint. The Vietnam War contains many painful examples of this mistaken thinking.

Actions that inflict environmental impacts during the conduct of war can be divided into three broad categories: collateral damage, wanton and unnecessary impacts, and modification of the environment. Of course, the United States

condemns the later two types of impact. Next, I want to discuss the possible collateral damage of our operations.

To limit collateral damage we exercise disciplined operations. Discipline begins with trained leaders whose personal example and standards of conduct create well disciplined units and ensure proper conduct of operations on the battlefield. How an army fights is a mark of what it is and the principles for which it stands. Laws of war are only effective in reducing casualties and enhancing fair treatment as long as trained leaders ensure those laws are obeyed. The commander does this by building good training programs that reinforce the practice of respecting those laws and rules of engagement.

As Professor Grunawalt said in this morning's session, the most important thing is the behavior of those soldiers in the field. War is tough; it is uncompromising and unforgiving. But, the Army operates within established rules of engagement and conducts warfare in compliance with international law and within the conditions specified by the commander. The Army applies combat power necessary to ensure victory through appropriate and disciplined use of force.

During combat operations, emphasis must be placed on mission accomplishment. Any goal of minimizing environmental impacts is probably best achieved by applying the principles of war to achieve quick and decisive victory. The environmental impacts that are necessary and proportional to such a response must be allowed. That, in turn, requires that Army commanders have the maximum flexibility to maneuver against and surprise the enemy. So restricting the application of combat power to predictable patterns of behavior based solely on environmental considerations must be avoided.

The Army has historically integrated a number of other factors, such as protection of noncombatants and historical and cultural sites, into its planning process. Take for example the protection of cultural sites and artifacts. Many elements on the staff have responsibilities for these considerations. The Civil Affairs Officer will establish their location; the Fire Support Officer receives locations to prevent destruction by artillery; and the Staff Judge Advocate provides legal advice to assure compliance with the law of armed conflict. A similar process takes place for natural resources. And, we are moving today to establishing this process more clearly in our doctrine.

Let me briefly discuss some current efforts in doctrine and training. The Army is taking steps in both doctrine and training to prepare our soldiers and leaders for the increasing environmental challenges of Army operations. How we fight and how we train is all based on our doctrine. Doctrinal integration of environmental considerations is a significant focus of the Army's environmental strategy. It is a vital piece because how we train and how we fight is all doctrine based. At the same time, we are developing specific environmental requirements into our procedural or "how to" publications. In training, we are using a principle

of integration, so rather than develop a lot of stand-alone courses, we are integrating a lot of environmental considerations into all levels of our existing training. Environmental instruction covers Army and unit environmental programs, applicable environmental laws and Army Regulations, soldier and leisure duties, and development of the environmental ethic.

I think we all view stewardship as the key element of the Army's environmental ethic. The Army is charged with protecting and defending the nation and that includes safeguarding the environment as well.

We are trying to integrate environmental considerations into specific military occupational training as well. For example, those soldiers who are fuel handlers, heavy equipment operators, mechanics and heavy weapons handlers require priority attention. We are taking steps now to address their immediate training needs.

The Army must be capable of decisive victory in full-dimensional operations; be able to employ all means available across the full range of possible conflicts. The acceptable level of these impacts is not finite. The Army applies the combat power necessary to ensure victory through an appropriate and disciplined use of force in accordance with international treaties, rules of engagement and guidance from commanders. In some respects, protecting the natural environment may seem to run counter to the warrior culture and may even be seen to be an impediment to battlefield success. But, I think today we realize that the incorporation of environmental ethics into how the Army plans its battles is important. A sound environmental ethic, and specific doctrinal guidance, will prepare our soldiers and leaders for operations into the 21st Century and the challenges that they will have to face. Thank you.

Brigadier General Huffman: Thank you General Garrett. Well, you have heard from our first two panel members, both of whom I would have to describe as adherents to what may be called the Colin Powell school of decisive victory. That is, once the political decision is made to go to war, you go to war to win immediately, decisively, without constraint. I believe Major General Linhard will give us a somewhat different view. I do know one thing, having read his paper, he is going to talk to us about something that is as important as General Garrett did in talking about the inculcation of environmental training and sensitivity into the Army's training and indoctrination publications and programs. General Linhard will talk about ensuring that environmental aspects of weaponry are considered in the acquisition process. So sir, with that I turn to you.

Major General Robert E. Linhard, U.S. Air Force: This is, as my colleagues have noted, a nice break for us. Both because its a good chance to hear a different part of the discipline and because the three of us tend to meet together at least twice a week in what is known as "The Tank." Since we are the Deputy Operations

Deputies for the services, we get a chance to meet and regularly agree on things that are myriad in scope and deep in substance. And once again, that is the case.

Quite honestly, as last of the three speakers here, I must say we fight jointly as a team and I agree with much, if not all of what has been said by my colleagues. But, I would like to put a little bit of an Air Force flavor on my remarks. At the same time, I would also like to re-touch upon some of the imperatives that we have talked about, highlighting the importance to us, as military professionals, of achieving military objectives that are appropriately set for us by our political leaders. The Air Force, like our sister services, has made a commitment to cleaning up and protecting the environment. This commitment does constitute a challenge given that our primary task is to conduct operations that are capable of unprecedented destruction. On the surface it would appear that we are stuck with a dichotomy. But in fact, in our public statements, in the development of our spending priorities, and in our day-to-day operations, the Air Force sets a high standard for environmental consciousness. Nonetheless, during Operation Desert Storm, and not withstanding the precision targeting that was available to us, environmental damage was significant. My point is that environmental destruction is a fact of war, and protecting the environment cannot stand in the way of achieving legitimate military objectives set for us in the appropriate way by our political leadership through legitimate orders, achieving those objectives at reasonable and appropriate costs. I am concerned greatly about the environment, but I am more concerned about the sons and daughters that you entrust to us to serve in the uniform of our country. We would hope that if you put us into a situation in which we have choices to make, and we are positioned legally and appropriately, that you will allow us the judgment to balance how much your sons and daughters are worth, how much the sons and daughters of Coalition members, and even of the opposition, are worth in the grand scheme of that balancing act.

Air Force programs associated with the environment can be traced back to World War II. Air base construction by aviation engineer units provided efforts to protect the environment by limiting the negative impact of our base operations by reducing soil erosion and controlling dust around airfields. Unfortunately, I have to tell you that most of that also affected our ability to conduct air operations. So, we got there in a secondary way. In fact, minimizing the environmental impact of our combat operations during that period was largely beyond our capability. For example, in the course of our anti-oil campaign in Europe during WW II, our targeteers really did realize that hitting towers instead of oil storage tanks would both be militarily more effective and less harmful to the environment. But, our problem was that we required about 9,000 bombs to ensure the destruction of targets with a circular error of probable (CEP) of 3,000 feet. So you dropped an awful lot of ordnance, and you were grateful to hit any part of the refinery. Our

efforts to do that mission led to the destruction of a lot of the surrounding countryside.

By Vietnam, our bomb accuracy had improved to a point where it took about 176 bombs to destroy a target with a CEP accuracy of about 400 feet. So, environmentally friendly bombing, if you want to call it that, was at least understandable, if not exactly feasible. Earlier in the war, we denied North Vietnamese allegations that we were bombing North Vietnamese rice irrigation dikes. We stated that we wouldn't do so. The North Vietnamese then moved anti-aircraft weapons onto the dikes, and although under international law we believe the North Vietnamese actions made their guns legal targets, we at first elected not to return fire against the anti-aircraft artillery (triple-A) batteries located on the dikes. Later we used cluster munitions to disable the guns and to kill the gunners without harming the dikes themselves. After the fact analysis suggests that perhaps the choice of attacks saved a good portion of the North Vietnamese dike network. Quite honestly, the recoil of the triple-A on those dikes may have caused quite a bit of the weakening and quite possibly the eventual destruction of some of the dikes.

By the Gulf War, our improvements in weapons accuracy made minimizing collateral and environmental damage more feasible. Still, it takes really smart targeting to realize the full benefits of "smart bombs" and improvements in this area also were made. For example, we destroyed electrical switch gears, not generators. This allowed us to turn off the Iraqi electrical system during the war in a manner that allowed it to be quickly repaired when the war ended. The feared cholera epidemic never happened, perhaps due to the speed in which sewage treatment plants were energized after the war because electrical power, in fact, could be quickly restored. Similarly, we hit the valves of the Iraqi oil system, reducing the mobility of Iraqi forces during the war. At least in one instance we somewhat protected the environment and permitted somewhat of a faster recovery of the Iraqi oil industry in a sense, by that activity. Additionally, we may have defeated one Iraqi attack on the environment when our aircraft destroyed the manifold needed for the Iraqis to callously pour crude oil into the Gulf.

Taken together, Coalition air attacks inflicted strategic paralysis on the Iraqis that supported and complimented the Coalition ground effort and probably reduced the time that ground operations were needed to successfully conclude the conflict. This obviously did minimize the environmental impact of our operations, but more importantly, it saved Coalition lives and, I would argue, lives in general.

After Operation Desert Storm, it became obvious to us that protecting the environment would become more of a priority for the Air Force. I am confident that both my colleagues on this panel would have the same comment. In 1991, Air Force Chief of Staff, General McPeak, made protection and enhancement of natural and cultural resources an environmental leadership goal for the Air Force.

To this end, we have made environmental compliance a mindset, to the extent that we can, for our daily operations. For example, in our acquisition programs we have reduced our purchasing of toxic substances and made a deliberate decision not to incorporate environmentally damaging substances into our future purchases. Also, we established a Commanders Environmental Leadership Course because we firmly believe that environmental management consciousness and techniques need to be a part of the tool kit of the commander. Commitment to the environment at this level comes at some cost. Impacts on spending levels for cleanup, compliance, normal operations and even acquisitions have been substantial. Our increased spending in this area is somewhat of a good news/bad news story with somewhat of a happy ending. Throughout the 1980's, we increased our spending on environmental compliance and cleanup and now are beginning to see, we believe, the benefits in our compliance and pollution prevention programs as we turn some corners. Spending, we believe, has peaked and our investments are paying off satisfactorily.

On the acquisition front the story is similar. A recent study was conducted on the impact of environmental factors upon our acquisition process within the Air Force. Offices that participated in that study said they are required to consider almost every aspect of the environment. Examples included ozone depleting substances, toxins, volatile organic complexes, noise, petroleum products, heavy metals, endangered species, thermal waste, and respirable fibers. Seventy percent of our program management officers reported adverse impacts on their programs attributed to these environmental interests. That's just natural; it does cost to do this. Primarily, the impacts were increases in costs and in significant delays in acquiring what we wished. The good news here is that most often we have found that we have been able to achieve positive results. Numerous success stories exist. For example, the new Joint Primary Aircraft Training System, a replacement aircraft for our primary initial jet trainer, has no ozone depleting substances and is almost completely free of toxins and dangerous heavy metals. Other success stories can be told of the track record of the C-17, the F-16 and the F-22.

So, as a service, and again I would note our sister services are equally as committed, we in the Air Force are committed to protecting the environment. But we must use and can use environmental programs in a way that will allow us to maintain and enhance readiness. It is imperative that we consider all aspects of the environment when we are conducting operations, to include the waging of war. But, we cannot consider the environment to the extent that protecting the environment will inhibit our ability to successfully conduct that mission for which we were primarily constituted. Damage to the environment during normal military operations, especially in war, is inevitable.

I would like to again say a few words about targeting. Earlier I said it does you little good to have smart bombs and not have smart targeting to allow you to

reconcile the differences between the obvious damage that could be inflicted by military weaponry and the objectives that you need to gain. Although to some extent precision targeting can prevent, and has prevented, collateral destruction, I think we, along with the rest of the world, witnessed through the eyes of television, just how destructive war can be. We learned that environmental destruction during conflict can take at least two forms. In the Gulf War, for example, Saddam Hussein deliberately caused environmental destruction as an indirect way to achieve a military objective. At the same time, collateral environmental damage was inadvertently caused by Coalition Forces while conducting lawful military operations.

As your discussions this morning demonstrated, the laws of war reflected in custom and international agreements are clear and yet problematic in some respects in this area. The problem is the degree to which the intent of the attacker must be ascertained. If the intent of the attacker is the destruction of enemy capabilities and not devastating environmental side effects, different sets of concern basically come into play. Environmental effects have to be considered as part of the traditional balancing of military necessity against foreseeable damage to noncombatants and civilian property. That balance leads to some conclusions. Saddam Hussein's directive to deliberately spill oil into the Gulf, to blow up as many oil wellheads in Kuwait as possible and to leave those wells burning, seems to me to be a violation, and should be a violation of international law. Saddam's attack was on the environment, but we cannot forget that as the aggressor, he also had a penalty to pay. The equivalent in criminal law, I would think, is that a man who goes in to a store with the intent of robbery, and in the process kills the shopkeeper, is responsible for murder as well as robbery. In this sense, the problem is that we had an aggressor who, as a direct consequences of his actions, for whatever reasons, also committed a fairly significant degree of environmental damage.

In contrast, the United States and Coalition Forces tried to avoid, and did avoid reasonably well, environmentally sensitive targets. Nonetheless, the destruction that was caused by Coalition Forces was significant and lasting. Concern over environmental destruction during a military operation like Desert Storm must take a back seat to military objectives that are legitimate and correctly constituted. However, once the war is over, the focus shifts to the devastation and the need for remediation. Today, the United States and some of our Coalition allies are helping Kuwait clean up the residue and ravages of that war and are working together to ameliorate the damage that was done.

What then can a military planner do? As a military planner I would argue that we can ensure that positive steps are taken to consider the environment throughout the entire range of military operations. Environmental analysis and environmental planning should be incorporated into our plans in the sense the commander should

have environmental management expertise in his command tool kit and he should ensure that environmental planning plays an appropriate part in target selection and target analysis.

Additionally, I would argue that as military operations are prosecuted, whether in war or operations other than war, environmental concerns should remain part of the process. During these operations, we commanders must be conscious and stay conscious of the activities and the weapons being used and the destruction taking place. Environmental analysis should concentrate throughout the operation on two primary concerns. First, what recommendations could be made to higher authority—to the decision makers, to the senior military commanders, to the political leadership, to minimize permanent and lasting environmental damage and still accomplish the required mission. And second, what would be required for eventual remediation in the area of operation.

The idea here is not necessarily to advocate that environmental concerns be a primary focus. In fact, they should not be. At the same time, it is so obvious, and here I agree heartily with the comments made by my colleagues, that you can take actions that reflect some balance in this equation. Incorporating environmental management into the process is an option that allows us to minimize, to the extent that it is appropriately consistent with achieving legitimate military aims, without any permanent or long-lasting environmental damage.

The Air Force right now is in a transition phase. Our planning and review guides, which we use to conduct the way we train and fight, need to be reviewed and are being updated. Likewise, the core directives that we use to develop our plans are being updated to ensure we consider and manage the environmental impacts of our operations. I would cite Air Force Manual 10-142, our Operational Plan and Concept Development Directive, which was published in April 1994. This Directive provides an Appendix for our Civil Engineers that allows us, and details for us, environmental protection and compliance tasks to be addressed as specific and unique Air Force planning activities.

I also would cite the current Joint Chiefs of Staff Instruction 3122.03, entitled Joint Operations Planning and Execution, Volume 2, which talks about planning formats and guidance, and contains an extensive Environmental Assessment Appendix. There is activity here that shows that we in the military, although recognizing the primacy of achieving our principal mission, are not unaware of the requirements involved in protecting the environment.

Finally, I would say that most of my career has been involved in strategic nuclear weapons. We were always painfully aware of what the environmental impacts are. We had to deal with everything from the lessons learned from a Chernobyl, to the considerations of a "nuclear winter". Good common sense practice is very much in keeping with a good military operation. I would also add one last point. This morning there was quite a bit of discussion about the difficult

challenge to the commander and his responsibility to make judgments. There are ways that he can be helped. I think that in considering the choices that we have to make, it is clear that you have to approach it on a case by case basis; you need to consider the circumstances involved. I would argue that it is a different circumstance for a military in legitimate national defense in the face of a superior aggressor for which it had not initiated conflict. If the choice is saving the lives of your citizens and protecting your nation and in so doing a certain degree of environmental damage is necessary, that is quite different than the choice that we talked about this morning even if we were to assume that Saddam Hussein chose to burn oil wells to protect his forces from observation and strike. Again, Saddam must suffer the consequences of having started that aggressive action.

I think that we also have to recognize the responsibility that is placed on our political leadership. You can allow a military commander a bit more latitude in achieving his objectives in appropriate ways if we ensure, as mentioned by our moderators, that we have a good set of principles and make good choices on when you put the military in a position to achieve objectives. If our political leadership puts us in a position in which stated objectives cannot be achieved, it puts more pressure on the commander and you need to recognize that. Thank you for your time.

Rear Admiral Wright: It was interesting listening to all of this and I want to capture what I think is coming through three slightly different military cultures. You have to understand you have representatives here of Services that work in different environments. I am not trying to be cute about this but I thought all of us agreed that war is something that should be exempt, it should be awful, and the rules that we ought to look at need to be carefully considered. We all agree that mission accomplishment is important and that you do not want to put such weight on the mind of the man that is charged with carrying out the mission that he cannot complete it. The Navy culturally favors freedom of action. You probably have heard of our love of "*ad hoc*-ery"; our feeling that no rules are better than any rules. In contrast, the Army lives on the land in a very constrained environment. They are up close with the people. I thought I heard the Army saying, "Let us know what the rules are and we will develop them into our doctrine and the way we fight." That is not to say they are going to accept crazy rules, but essentially it is an understanding of the reality of a constrained legal environment and it was going to be a fact of life. The Air Force, which has always valued precision, has said, I think, "Let us know the letter of the law so we can do exactly what we want to do, legally."

Colonel Lyn L. Creswell, U.S. Marine Corps: If you are a Force Commander planning to deploy your forces into the field, would you put something in your "Commander's Intent" regarding the environment, and if so what would you say?

Brigadier General Garrett: By the way, everyone should notice that there are no Marine Corps representatives on our panel this afternoon. In response to your question, unless there is some specific consideration that you want to highlight, I do not think you would put anything in your "Commander's Intent." If there was a dam, or if there was a pyramid, or there was something unique that required specific consideration, I think you would be well advised to mention it. But, in most cases, I think sound environmental practices are pretty well built into our standard operating plans and policies.

Major General Linhard: I agree. But, I also think we would find some coverage of environmental issues in the rules of engagement.

Brigadier General Garrett: If you go back to my personal experiences in Saudi Arabia, in our actual operations orders, there was nothing mentioned that had to do with the environment. But, if you looked at our field operating procedures, there were a lot of things built-in that dealt with environmental considerations.

Rear Admiral Wright: I would say, "no," as well, because I think the "Commander's Intent" really places overriding emphasis on the commander's words. I would not want to put in the mind of the people I am requiring to carry out a mission an extra degree of uncertainty about what I expect. They ought to be able to make choices at their level without a "bias" in the statement of the "Commander's Intent".

Colonel James A. Burger, JAGC, U.S. Army: At a recent staff meeting at my command in Naples, my commander, who is a Navy Admiral, said the primary consideration in his mind, when he was approving the recent targeting list for the air campaign that went on against Serbian heavy weapons and other targets in Bosnia, was the prevention of collateral damage. And, of course, one of the reasons why he said that is because he had in mind that we had to follow a U.N. mandate. We had to keep together a coalition to have the support within NATO to accomplish this mission. We were trying to accomplish some very specific things to impress upon the Serbs why we were doing this, to change their minds, and to get them to do something. Of course, this is within the context of a very special mission that we were given. I just wondered if the members of this panel might comment on the new types of missions that we have and perhaps why we need to, or might need to, consider things like danger to the environment more in these

types of missions than we would in the more traditional missions that the Navy, the Army, and the Air Force have been conducting?

Major General Linhard: Speaking as a U.S. military officer involved in "joint" matters, I believe we are looking at situations in the future where, hopefully, for some time to come, the homeland of the United States is not at risk. What is at risk, the political objective to which we have committed forces, is more limited. On the other hand, the group that we may be dealing with all too often operates in a much less limited environment. So I think you legitimately need these kind of checks and balances. The situation of a NATO war in central Europe, with a likely threat of escalation to a global war in which the upper end of the NATO triad obviously involves U.S. strategic forces, which brings both the Soviet Union and NATO directly and immediately at risk, that is a different environment. There was great risk in that setting and interest was very high. But, where you do inject U.S. military forces to achieve political objectives, it is absolutely right to have recognition of the need for some balance. I would hope that that recognition of balance occurs at the political level. When we go in militarily we have got to be sensitive to it. Let's face it, when we talk about limited political objectives, once you are on the ground, as my friends in "green" often are, and we, in light blue, are on occasion, the individual soldier, sailor, or marine on that mission has one unlimited concern; he is putting his life on the line.

Rear Admiral Wright: Defining clearly the right targets, whether for environmental reasons or for cultural or spiritual reasons, allowed us to provide a technological demonstration of our capability that worked well on the people it was meant to work on. It was a measured, carefully orchestrated campaign.

Brigadier General Garrett: I would just say in general that in MOOTW we are finding a lot tighter control in the initial steps of the operation. I think there are some other considerations that come in to play when you are running an operation like that, especially initially. By the time you get the Army committed in the field with clearly defined military objectives, those limiting considerations do not apply quite like they do in circumstances such as those we have discussed as currently being in effect in Europe.

Dr. Glen Plant, London School of Economics and Political Science: I think no one here would disagree that war is unhealthy. It is bad for the health of humans, animals, plants, whatever. No one disagrees that the military have a job to do in wartime. Perhaps I am being a little unfair in suggesting this but I hope I am not. I think there is something implicit in what you say that misstates the question. If

I may use the usual trick, a Jesuit trick of rephrasing what you say in my own words. As you know, Englishmen are particularly fond of animals. If you are talking to an Englishman about the environment, he will immediately think you are talking about something cuddly and warm. A senior British military officer recently said to me, "I would not endanger the life of one of my men for a punch of animals or trees." If that is partly what you are suggesting, you are misstating the question. I would say that what we have to protect is certain fundamental environmental values, which, if they are thought about clearly, will put a new perspective on the value of your mission, or indeed the value of some of the lives of your men. Of course, nobody wants lives to be sacrificed unnecessarily. If there was a war that left large parts of Mexico an infertile desert, not only would you have the problems of massive disruption in population, which in itself could lead to widespread death and illness, you would also have the problem that the Englishman would be most concerned about. You would lose the Monarch Butterfly. In addition, you would lose things that make up important parts of what is known as biological diversity. You may lose substances that we might not even know of that are important for medical purposes if only we have the wherewithal to discover them; things that are important for various industrial uses. For example, substances that you could use to make new and important resins, *et cetera*. But I think that perhaps most important of all, you may endanger the world's food security. We all know about monoculture, the lack of genetic diversity among our major food crops. Well, it may be that we are going to wipe out some wild wheat strain that is the answer to some blight that may hit us like an Irish potato famine of the future. So if you start to think in those terms, it is not a straight forward question of man versus beast.

Major General Linhard: I expect St. Ignatius would be very happy the way you rephrased the question, but I would not accept that phraseology. I will give you that there are edges of the envelope that are easy to resolve. As professional military officers, it is a part of our job to engage in the use of force that entails the least risk of loss of life. What we are talking about is a different environment and I am not talking about an individual life here. I do believe there will be circumstances in which a choice must be made between achieving a military objective and protecting the wetlands with the casualty rate being significantly greater. You may be able to worry about the Monarch Butterfly, but I must be worried about the youngster from Kansas entrusted to me for his life and that is what I get paid for. All I ask is, listen to the case that the commander makes after it is done. If we, the military, made a bad call, a terrible call, we are culpable. But, I would also note, the body politic would be equally culpable. I am concerned with every life that is lost.

Brigadier General Garrett: I would say that if there are stated environmental concerns, then they will get factored into the planning process as much as possible. I mean, if somebody tells me that there is "X" amount of wheat out there, or "X" amount of butterfly habitat, or "X" amount of whatever, then you can factor that into the planning process. In the final analysis, depending upon what the requirements of the stated mission are, you may be able to accommodate those factors or not. But, to be able to go into combat and say, "Gee, there may be something there, or we might want to save this as a nature park 20 years from now," is not going to happen. But if there is something that is known, I think the planning process will accommodate that consideration. But when, at the end of a mission, as General Linhard said, you balance the mission and protection of our soldiers and our forces versus pure environmental considerations, environmental considerations are not going to weigh that heavily.

Brigadier General Huffman: There are different levels of environmental decision-making. The decision-making Dr. Plant is talking about is at the level that Mr. Harper and his contemporaries may make which is always a factor, or Baghdad would be a nuclear waste-pile right now - not to be flip about it. Obviously, environmental considerations are a part of the strategic and military-political planning process. What our panelists are talking about is that once engaged, it becomes quite a different equation for the commander on the ground and his people.

Professor Myron H. Nordquist, Naval War College: Just as a follow-up to what you were saying, I have been stewing over what Mr. Harper said earlier. I am worried that our legal arguments, based on environmental concerns, may be used against us. For example, the International Court of Justice has been asked by the United Nations General Assembly whether nuclear weapons are legal or not. I am thinking about Saddam Hussein who, if you could believe his brother-in-law, was deterred from doing even worse things than burning or dumping oil because he knew we had nuclear weapons. I assume that we informed him that we would be inclined to use those weapons if he were to engage in biological and chemical attacks. I guess I am saying that it was good for us and the world that we had a deterrent for that. But, I am concerned if we are not careful about the legal arguments that we make when we talk about condemning environmental damage, that others, perhaps to include the International Court of Justice, might pick up some of the things we are saying and conclude that the environmental degradation that went on in the Persian Gulf area was so bad, just think how bad it could have been if there was a nuclear bomb exploded. I don't know if anyone on the panel shares my concern, but I have been sitting here and stewing about it.

Rear Admiral Wright: I agree with you. If there is anything that you can capture about deterrence, and we are always looking at that murky area, it is that we understand strategic deterrence. And, we understand that somewhere below the strategic level there has to be a form of deterrence that still will hold off a very unfortunate exchange. To the extent that you invent rules that remove uncertainty from a potential aggressor's calculations, you are destroying deterrence. That seems to be at the heart of what you are saying; defining these things, making legal pronouncements such as no first use of nuclear weapons, thereby destroying deterrence.

Mr. Conrad Harper, Legal Advisor, U.S. Department of State: I would not want anyone to think that I did not have in mind the nuclear weapons cases in the World Court. Jack McNeill and I have been very much concerned about those cases. They will be argued beginning at the end of October or early November 1995. But, I think I can speak directly to your concern. The Court has before it, broadly speaking, these issues; whether or not the possession, the use, or the threat of use of nuclear weapons violates international law. At these abstractions, we take the view, among others, that the question first of all is not admissible, and that in any event, the court should not use its power to address the question. And, finally, as a matter of substantive law, it is not a violation of international law to use, or possess, or threaten to use such weapons, as such. Having said that on one level of abstraction, I will take it down to the Gulf War situation where I am perfectly prepared to say that, had there been dumped one gallon of crude oil into the Persian Gulf, I would not have argued that there was a violation of internationally accepted norms by Saddam Hussein. It is a question always of measure, of degree, of proportionality. And, just as I am not prepared to say that it would be a violation to dump one gallon of oil, I am not prepared to say that the use of one bomb would, in and of itself, constitute a violation of international law.

I have been struck, if I may proceed to a second topic, by the sense in which the panel has reinforced the notion that these legal norms are important. That is to say, when we look at the question of bombing a valve, or bombing a switch, instead of a tower, instead of a tank, we may be making an environmentally sound judgment. But, we are also making a judgment that saves ordnance, saves fuel, and deliverance of ordnance, and ultimately may prevent what would otherwise be a catastrophe later in time, such as a cholera outbreak, if in fact we have done maximum damage rather than that which was absolutely needed. So I see law as not always in tension with military necessity. Sometimes the law can reinforce, it can guide, it can discipline, and it can illuminate how we should act.

Professor Bernard H. Oxman, University of Miami: It occurred to me in reading some of the literature on the subject, including some more intensive reading that

I did in preparation for this Symposium, that lawyers are very good at making strategic use of legal rules for their own immediate purposes. But, one of the things that struck me as odd about some of the literature in this field is that lawyers also tend to forget that others, including political and military leaders, can do exactly the same thing. I was wondering if any of the panelists ever felt that attempts were being made by an adversary to lure them into a violation of the laws of war, or into alleged violation of the laws of war, for example, with respect to targeting.

Major General Linhard: I cannot think of any situation that I participated in where I thought I was being led by the adversary into doing something like that.

Dr. John H. McNeill, Deputy General Counsel, U.S. Department of Defense: There was one instance of an apparent attempt by the Iraqi government to lure us into attacking fighter aircraft parked near the ancient Temple of Ur, an important cultural object. Of course we did not fall for it and it was obvious that as long as those aircraft were assigned the mission of being on static display next to that particular temple, they would be out of service as far as combat was concerned. So our need to neutralize them was accomplished just as well by not attacking them. Perhaps that is a crude example of what Professor Oxman is asking about.

Brigadier General Garrett: There are instances like that, but there is uncertainty over whether that is a serious and sophisticated effort to try to cause us to stumble into a violation of legal norms or if it is the action of an indecisive commander who is doing something basically crude. As an example, when the enemy emplaces "triple-A" on dikes, can we know his purpose? Is he trying to lure you into targeting a population center when he moves his military capability into that area or is it a matter of him trying to protect it because he does not see us going in after it. So, I am not sure if it is a lure as much as it is protection. I cannot think of any sophisticated examples.

Brigadier General Huffman: There were a number of instances, such as the dual use of a hospital in Somalia as a sniper's nest, and other things like that. Which is, of course, the analogy that is most often drawn between environmental considerations and the law of war in general, that is, collateral damage to civilians and to protected property.

Dr. Dieter Fleck, Director, International Agreements and Policy, Federal Ministry of Defense, Bonn, Germany: In contrast to some of you not majoring in this discussion, I doubt whether we should be too pessimistic. I consider these presentations this afternoon to be excellent examples for the necessity of

cooperation between operators and legal advisors in this field. I understand we will have ample opportunity to discuss these questions during the forthcoming days, but this is an opportunity to say that, yes, we should try to elaborate further details of military planning which remain subjective, which remain relative, in their importance. We are spelling out what has been said in the Additional Protocols and some of these rules are far exaggerated in their importance. I would strongly recommend that if you are considering ratification of the Additional Protocols, which I, as a German, would favor extremely, you must not concentrate solely on the environmental provisions. The most important legal principle in this field is not Article 25 or Article 45 of Additional Protocol I, it is not the ENMOD Convention - which I consider one of the most unimportant international conventions I ever came across. No, it is the simple principle of proportionality which has been spelled out by people like Professor Martens, or it is apt to have been said in this room by Admiral Mahan, in 1907. The question today is whether we respond to this challenge, whether we agree to elaborate new plans which would remain relative, or which would not be considered as one last word to interpret the rules. Indeed, operators and legal advisors should work together and they should never forget what they are fighting for, what they are defending. Certainly some of the examples made by Dr. Plant, for instances, are exactly the ones which we are interested in avoiding, both on the political side, and the miliary side, and definitely yes, on the legal side as well.

Rear Admiral Horace B. Robertson, JAGC, U.S. Navy (Ret.): One observation that Mr. Harper advanced for us this morning is that we have plenty of rules; the problem is enforcement. We have not addressed the question of enforcement this afternoon. I would like to hear what our operational compatriots have to say about enforcement.

Major General Linhard: I think the issue that will have to be resolved is a political question, that is, whether you wish to use military force to coerce a consequence; a price. Once you have decided to extract a price, there are a number of things that we can do depending on the violator. If we know that someone has violated international law, and if we know who that someone is, and once we are given clear political direction and achievable military objectives, we can and will act. But, I cannot suggest a specific action.

Rear Admiral Wright: One of the things that we have to consider is that this issue is of such a broad scope. Essentially, the environment can be thought of as a resource. We were talking about preserving bio-diversity and a slowing down of the evolution process. That is one end of the equation. There are going to be issues

involving misuse of resources, things like fishing, even drinking water and the like. We have a huge umbrella under which to talk about environmental damage. I think you have to be specific. We focused on those things that impact our ability to carry out war-like missions, not day-to-day matters like taking care of the contaminated waste aboard ships, that sort of thing. We have comprehensive programs and we are enforcing them. Those kinds of housekeeping things are automatic. Sure, we have a spill from time to time of some fuel or other contaminant into the water, and we do a routine cleanup. There are lapses in our environmental awareness but they are quickly repaired, remunerated or perhaps even resolved in court. Now if you are talking about the war-fighting side of the equation and are asking whether we ought to have a Nuremberg tribunal for crimes against the environment as we do for crimes against people, my reply is, perhaps. I get back to the Golden Rule. If you can win the war and you can start inventing all the indignation you want, you can essentially take your former adversary to task using any hook you are looking for: too much smoke, fouling the atmosphere, etc. If you win, you can make him feel economic and political pain. But, if you lose, you better stand by, hire lawyers and be ready to repel boarders.

Brigadier General Huffman: Let me say this with regard to what U.S. forces will do about an environmental violator in its own ranks. There is no doubt in my mind that a person that intentionally violated our rules of engagement reflecting on environmental damage would be dealt with very harshly. There is no doubt about that.

Professor Jack Grunawalt, Naval War College: The U.S. Navy has developed some guidance along these lines that is now being promulgated to U.S. Naval Forces, Marine Corps Forces and Coast Guard Forces. I would like to read a statement to you and ask you if you are comfortable with what this guidance provides with respect to environmental considerations.

> It is not unlawful to cause collateral damage to the natural environment during an attack upon a legitimate military objective. However, the commander has an affirmative obligation to avoid unnecessary damage to the environment to the extent that it is practicable to do so consistent with mission accomplishment. To that end, and as far as military requirements permit, methods or means of warfare should be employed with due regard to the protection and the preservation of the natural environment. Destruction of the natural environment not necessitated by mission accomplishment and carried out wantonly is prohibited. Therefore, a commander should consider the environmental damage which will result from an attack on a legitimate military objective as one of the factors during target analysis.

I ask in turn, whether from the Navy, the Army, the Air Force perspective, you are comfortable with that range of guidance?

Rear Admiral Wright: This gets back to the question of culture, and embedding in our commanders and our people in the Navy an appreciation for the environment. With all those right words such as "affirmative obligation," "unnecessary damage," "due regard," "not necessitated by mission accomplishment," and "factors during target analysis," I sit down with a JAG officer, and we can go over the mission and bounce back and forth the considerations given and the other courses of action. I can live with that kind of broad guidance. It is broad enough that I do not think it would cause me to force an unworkable constraint on the people who are going to execute the small parts of the mission. What I do not want to do is put in their minds an additional level of uncertainty with regard to what I am expecting. I would interpret the need to protect the environment with regard to the mission and I would spell it out for them. And I think I could probably do that through my guidance.

Brigadier General Garrett: I think the guidance you mentioned is pretty explicit, but I would tell you, I do not think it is anything that does not already exist in the minds of commanders and staffs out there in the field today. I think they are all aware of the realities of having to deal with environmental damage. I think those considerations are being factored in.

Major General Linhard: I would agree. I worry more about being "helped" by someone adding to that kind of single issue rule when we, as commanders, do not live in a single issue world. If I have to make choices, I would prefer to have general guidance, some broad, common sense guidance and then be judged on the exercise of my judgment, my ability as a commander, rather than be "saved" from exercising my judgment by being given a set of specific rules which, though drafted in good conscience, may not fit the circumstances that I face. That, no commander should be forced to live with.

PART THREE

PANEL II: THE ENVIRONMENTAL THREAT OF MILITARY OPERATIONS

Chapter VIII

The Impact of War and Military Operations other than War on the Marine Environment: Policy Making on the Frontiers of Knowledge

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Introduction

In recent years, the Navy and other military services have increasingly evidenced an environmental stewardship ethic in their operations. The impetus for this new priority is of both internal and external origin. As microcosms of society, the military services are comprised mainly of young Americans for whom environmental responsibility is an imbued value. As these individuals have assumed leadership positions, the military services have incrementally adopted an environmental protection ethic.

An equal or greater impetus, however, stems from sources external to the military services. Domestic law, including that which executes international agreements, has substantially increased the environmental protection responsibilities of military commanders. While such responsibilities are understandably more visible in Military Operations Other Than War (MOOTW) than in combat, under all circumstances the environmental consequences of military operations remain a legal, moral and public relations concern of the military commander.

Today, environmental concerns are a significant factor in the calculus of war and MOOTW. The emergence of this new concern has in turn highlighted what may be a critical data gap for military commanders and national policy makers: from a scientific perspective, the impact of combat and of MOOTW on the marine environment is not well understood. Hence, military commanders and national policy makers are forced to make decisions based on less than complete information. Various approaches can be taken regarding this uncertainty. Some might advocate a precautionary approach, refraining from action unless and until the probable effects are known and determined to be acceptable. Others might strike a different balance, allowing unfettered military operations regardless of environmental consequences, perhaps tempered by control only when science can demonstrate with certainty unacceptable results. Still others might take a middle

course, adopting a broad policy of avoiding widespread, clearly evident degradation, based on the limited available scientific information.

Overlaying this uncertainty is the reality that in order to win during war, realistic training must constantly be conducted during peacetime. For purposes of this paper, peacetime training, whether in U.S. or foreign territorial waters or on the high seas, is considered a MOOTW. To a large extent, unless specific mitigation measures are instituted, the environmental risks and impacts of peacetime training are qualitatively much the same as the risks and impacts that can be anticipated during war. This begs the question whether different criteria should be applied to determine acceptable impacts of military operations on the environment during war versus during MOOTW. Perhaps surprisingly, in the context of U.S. environmental law, little distinction is made between acceptable conduct in war versus MOOTW.

This paper will focus on the impacts of combat and MOOTW in an attempt to resolve three questions. First, what *should* military commanders and policy makers know about the physical environment and the impacts of military operations thereon? This paper asserts that, as a minimum, military commanders and policy makers must achieve the level of knowledge that is required by legal regimes applicable to war and MOOTW. Part I of this paper explores the major knowledge requirements imposed on U.S. commanders by domestic law.

Part II of this paper addresses the question of what *do* we know about the impacts of war and MOOTW on the marine environment. Through a discussion of some of the known effects of weaponry, radiation, sound and oil pollution on the marine environment, it will be shown that our knowledge in these areas is far from complete.

In its final Part, this paper will suggest an approach for sound policy-making in the face of incomplete knowledge regarding the impacts of war and MOOTW on the marine environment.

PART I: WHAT SHOULD BE KNOWN ABOUT THE IMPACTS OF WAR AND MOOTW ON THE MARINE ENVIRONMENT?

Domestic U.S. law imposes significant knowledge requirements on federal agencies, including the military, whose actions may affect the marine environment. The discussion below focuses on the three major statutes imposing these knowledge requirements.

National Environmental Policy Act

The National Environmental Policy Act (NEPA) mandates formal documentation and full consideration of the environmental impacts of any proposal for "major federal actions significantly affecting the quality of the human environment."[1] In documenting such impacts, federal agencies must document

and consider an extremely broad universe of effects, including those that are direct, indirect, cumulative and connected, whether or not such effects are adverse or beneficial to the environment.[2] Recognizing that in some cases adequate scientific information may not be readily available, the regulations further require agencies to obtain the necessary information (*i.e.,* do the scientific studies) if the costs thereof are not "exorbitant."[3] If the costs are exorbitant, or if the means to ascertain the information are unknown, then the agency must attempt to evaluate such impacts based on theoretical approaches or generally accepted scientific research methods.[4]

The NEPA statute includes no enforcement provisions. Agency compliance with NEPA, however, is subject to judicial review through "citizens' suits"—lawsuits brought by private citizens or groups against federal agencies. Accordingly, when preparing environmental documentation, federal agencies strive mightily and at great expense to include sufficient scientific information to survive judicial review.

Closely related to NEPA is Executive Order 12114,[5] which requires environmental impact analysis for certain federal actions significantly affecting the environment of the global commons or of foreign nations. Although extremely broad in geographic scope, the Order contains numerous exemptions from, and qualifications to its requirements, which in effect substantially circumscribe its mandate. The Order specifically disavows creation of any right of action, hence the threat of potential legal action has not been an inducement for federal agency action under the Order. Nevertheless, the Order remains a mandate for collection and consideration of information regarding the effects of military activities on the marine environment.

In response to the mandates of NEPA and Executive Order 12114, the Navy and Marine Corps have conducted numerous environmental studies, large and small, of the effect of military training operations on the marine environment. The costs of these studies may range from the low thousands to several million dollars.

Endangered Species Act

U.S. species protection statutes impose very significant scientific knowledge requirements on federal entities, including military commanders. The Endangered Species Act (ESA) prohibits federal agencies, including the military, from undertaking any action that would jeopardize the continued existence of endangered species, or adversely affect their "critical habitat," meaning that geographic habitat area necessary for the recovery of the species from endangered status. In order to determine the potential impacts of their activities on endangered species and critical habitat, federal agencies must conduct *biological assessments* of their activities.[6] These assessments generally involve both literature search and field study.

Biological assessments are then provided to the cognizant wildlife agency, which in turn will issue a *biological opinion* on the probable impacts of the activity on endangered species or critical habitat. The biological opinion may indicate that the proposed action may have no effect, that it will have no effect provided specified mitigation measures are undertaken, or that the action will jeopardize species and cannot be mitigated to avoid such impact. A federal action may not proceed in the face of a *jeopardy opinion*, unless relief is granted by the Endangered Species Committee, discussed below.

The ESA's prohibition on "taking" certain species expressly applies to persons subject to U.S. jurisdiction "upon the high seas",[7] creating a virtually world-wide regulatory regime. The statute requires that information developed for consultation be the "best scientific and commercial data available."[8] As mandated by the ESA, the Navy has undertaken a number of consultations to ensure that operations at sea do not violate statutory requirements.

Marine Mammal Protection Act

Like the ESA, the Marine Mammal Protection Act (MMPA) prohibits the "take" of any marine mammal on the high seas. Under the Act, "harassment" of a marine mammal is a form of "take." MMPA defines "harassment," in part, as "... any act of pursuit, torment or annoyance which ... has the potential to disturb a marine mammal ... in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding or sheltering."[9] Given the breadth of this definition, virtually any military action at sea, including routine vessel traffic, could result in a "take." In the preamble to a draft rule establishing procedures for granting marine mammal harassment permits, the National Marine Fisheries Service (NMFS) specifically cited generation of marine sound as activity that might require a harassment permit.[10] The draft regulations themselves contemplate ship noise as a potential source of harassment.[11] The draft regulations require permit applicants to submit scientific information such as: the species and numbers of marine mammals likely to be found in the vicinity of the activity and, for those likely to be affected, a breakdown of such animals by age, sex and reproductive condition; the anticipated impact of the activity on the animals and on their food sources and habitat; and a monitoring plan to evaluate the actual impact of the activity on marine mammals.[12] NMFS must then consider the "best scientific evidence" in determining the probable effect of the activity on marine mammals.[13]

Knowledge Requirements in War v. Military Operations Other Than War

As discussed above, U.S. statutes impose significant requirements regarding the collection and consideration of information relative to military operations in the marine environment. A related issue is whether this burden is different in

combat situations than in other scenarios. Common sense suggests, of course, that during war U.S. commanders should not be required to prepare environmental impact statements for amphibious assaults, nor obtain a permit for whale harassment before conducting an attack on enemy shipping.

In reality, U.S. laws imposing information collection and consideration requirements make little distinction in environmental requirements between peacetime and wartime requirements. NEPA provides no war or national emergency exemption. Implementing regulations provide merely that if emergency circumstances make it necessary to take action without observance of NEPA requirements, the agency should consult the Council on Environmental Quality.[14]

Neither the Marine Mammal Protection Act nor its implementing regulations provide a war or national emergency exemption. The U.S. Supreme Court has held that the ESA's prohibition against taking endangered species "reveals a conscious decision by Congress to give endangered species priority over the 'primary missions' of federal agencies."[15] In recent litigation, the United States Coast Guard argued that its mission has priority over endangered species. The U.S. District Court judge, in response, threatened an adverse judgment in order to "disabuse the Coast Guard of its mistaken understanding of the unequivocal message of the ESA."[16]

In the landmark case of *Tennessee Valley Authority v. Hill*,[17] the Supreme Court upheld an injunction against completion and operation of a dam costing more than $100 million. Shortly after that case was decided, however, Congress created the Endangered Species Committee as a safety valve for relief from the draconian effects of the ESA. The Committee, consisting of seven Cabinet-level officials, is empowered to exempt a federal action from ESA requirements upon finding that there are no reasonable and prudent alternatives to the action, and that the benefits of the action outweigh the benefits of conserving the species.[18] In recognition that ESA mandates could adversely impact military operations, the Act provides that the Committee must grant an exemption if the Secretary of Defense finds that an exemption is necessary in the interests of national defense.[19] Under existing law and regulation, however, such exemption could be granted only after considerable administrative effort, including preparation of a biological assessment and consultation with the cognizant wildlife agency. These efforts could take weeks or months. Thus, the availability of the exemption for use in defense related emergency circumstances, even during war, is not certain.

In summary, the information collection and consideration requirements of U.S. domestic law are substantial. These responsibilities do not disappear, at least for purposes of U.S. domestic law, upon the commencement of hostilities.

PART II: SCIENTIFIC KNOWLEDGE REGARDING THE IMPACTS OF WAR AND MOOTW ON THE MARINE ENVIRONMENT

Having described some of the requirement for scientific information on this subject, this portion of the paper will now discuss the availability of that information.

Certain data regarding anticipated effects of combat on the marine environment is available. For example, information is available on the expected lethal blast radii of various ordnance, the anticipated persistence in seawater of chemical and biological weapon agents, and the impact of petroleum in the ocean environment.[20] The actual impact of any given military operation on the marine environment, of course, would be time and location-specific. Hence, reliance on existing scientific data in the making of global policy is problematic.

Another difficulty encountered relative to scientific data collection in the marine environment is the vastness and complexity of the ocean environment itself. By way of illustration, below are discussed three case studies in which considerable scientific effort has been expended to assess the impacts of three different types of potential impacts on the marine environment: radionuclide release, oil pollution, and sound propagation.

Radionuclide Release in the Arctic

In 1993, the former-Soviet Union released information pertaining to the dumping of radioactive waste into the Arctic Seas. A paper known as the Yablokov Report or the "White Paper" was published containing data on both source locations and the amount and type of solid and liquid waste, high-level waste in the form of spent nuclear fuel, unfueled nuclear reactors, and discarded vessels containing radioactive waste.

Subsequently, the U. S. Naval Research Laboratory modeled the dispersion of those radioactive contaminants in the Arctic and its marginal seas. Source locations and total amounts of disposed radioactive material are based on the Yablokov Report. The Navy model investigates only the dispersion of contaminants once they have entered the water column. Model coverage extends from the pole to approximately 30 degrees North latitude using a grid resolution of 0.28 degrees. Several different ten-year model simulations are examined using the following source types and locations:

Low level solid and liquid waste dumped in both the Kara and Barents Seas;

High level waste, including spent nuclear fuel from reactors dumped along the Novaya Zemlya coast in the Kara Sea; and

Rivers emptying into the Kara and Barents Seas; and waste dumped from the nuclear power plant at Sellafield in the Irish Sea.

Comparisons of the model's results to recent data indicate that both the river and the Sellafield sources can account for a majority of the radioactivity recently observed in the Kara Sea. However, when high level radioactive waste is used as the source in the model, resulting concentrations of radioactivity are predicted approximately an order of magnitude higher than those actually observed. In contrast to the predicted impact, these results imply that sources of high level waste are not leaking significantly into the water column.[21] Were policy development based only on the initial effects and the predicted impact, inaccurate limits may be established.

In addition, other sources of radioactive waste from Russia have led to development of international policy. In 1993, 237,000 gallons of low-level radioactive waste were dumped by Russia into the Sea of Japan. An international meeting of 37 countries led to a prohibition on the dumping of radioactive waste at sea, with a scientific review and reassessment to be performed after 25 years. This prohibition was adopted notwithstanding environmental monitoring indicating no observable adverse effects as a result of the Russian dumping.

Gulf War Oil Pollution

The Gulf War oil pollution episode is an example of how even the best scientific methods may not provide accurate predictions of future ecological effects. Studies of the Gulf War demonstrate that the effects on the environment were not as severe as first anticipated. Numerous studies were also done on the effects of the war from both a socio-economic perspective and an ecosystem management perspective, taking into account the diverse political regimes in the Gulf that would have to cooperate to effectively manage the region as an ecosystem.

During the Gulf War, a total of 660 million barrels of crude oil were released into the atmosphere, onto the desert, and into the water. Of the 660 million, 6 million to 11 million barrels of crude oil were intentionally released into the marine environment by the Iraqi troops, contributing to the world's largest oil spill to date.[22] The focus of scientific study in the Gulf region has been on the oil slick caused by the intentional release, particularly because of the amount of oil that impacted the shoreline and the predictions of the long term impacts of a spill of such magnitude.

Concern for the environment was a part of the wartime operations, with mitigation of the slick commencing before fighting ceased. Originally, the slick was predicted to behave like the Norwruz spill of 1983 which exhibited massive sinking due to strong shamal winds blowing dust onto the oil, causing it to flocculate and sink. Since its specific gravity is less than 1.0 (the specific gravity of water), oil cannot physically sink unless it is mixed with sediments or particles

to make it heavier than water. Fortunately, the Gulf War oil spill did not sink due to uncharacteristic wind conditions which transported and contained the unrecovered oil against the eastern shorelines of Kuwait and Saudi Arabia. Also, the percentage of floating oil recovered by mechanical means was between 18-37 percent, greater than what is usually possible with mechanical cleanup (approximately 10 percent), thanks to an unprecedented international-scale effort in recovery operations. The spilled oil also had a high evaporation rate, estimated from 40-50 percent. The remaining amount was stranded on shorelines and in intertidal zones. Much of this was left to recover naturally, thus providing an opportunity to study the physical processes of weathering and effects of natural cleanup.[23]

One year after the spill, the Gulf area provided a unique learning opportunity for the scientific community as a whole, leading to the largest cooperative scientific endeavor in the Gulf region. Known as the "Mt. Mitchell Expedition", a 100-day multi-disciplinary oceanographic research investigation was organized to form a comprehensive understanding of the Gulf region and to study the long term effects and impacts of the oil spill. The expedition was jointly sponsored by the Regional Organization for the Protection of the Marine Environment (ROPME), United Nations Environmental Programme (UNEP), U.S. National Oceanic and Atmospheric Administration (NOAA), and Marine Spill Response Corporation (MSRC) with the participation of 140 marine scientists from 15 countries. Lasting from 15 January to 13 July 1992, the expedition facilitated much of the data collection and synthesis that has been done on the fate and effects of the spill. It provided a consolidation point and information management system for science-related studies in the Gulf region and has led to a better understanding of the effects of the war on the marine environment. The expedition's success was measured not only by the wealth of scientific data collected, but also in "the strides made in local, regional, and international environmental awareness and political cooperation in the Gulf."[24]

The oil was expected to cause gross contamination to the subtidal biological communities of the Gulf. However, the oil did not behave in the hypothesized manner. This was largely due to the rapid oil movement and stranding in the intertidal zone which kept the oil from sinking, and acclimation of the Gulf marine ecosystem to high petroleum impacts. In the Gulf area, microbial populations have been regularly exposed to natural seepages of oil that occur in the region. Rapid oil degradation and transformation rates exist due to the extreme high temperatures in the region. Significant photo-oxidation of polyaromatic petroleum compounds also occurs due to the strong solar radiation intensity.[25]

Overall, studies confirmed that there was very little "sinking" of the oil as originally predicted. Through subtidal sampling conducted during the Mt. Mitchell Expedition it was documented that little contamination exists in subtidal

areas above background levels, relative to the intertidal areas.[26] This leg of the expedition showed: 1) no evidence of large scale sinking as a result of the spill; 2) high levels of contamination in muddy, sheltered basins with low wave energy; and 3) oil initially stranded in the intertidal zone did not appear to accumulate in the subtidal, near shore regions, as might have been expected. Often it was difficult to differentiate whether the source of contamination that was measurable in the subtidal regions was from the Gulf War spill (intentional release), oil from sunken vessels, or oil residue from previous spills.[27]

In reviewing the compilation of data and analyses of scientific studies on the effects of the Gulf War on the environment, it was found that interpretations of the overall "impact" are varied. But taken as a whole, we cannot say definitively either way that there was a catastrophic "effect," or any effect at all. The answer lies somewhere in between and is dependent upon the particular parameter being measured and the assumptions being made. One must be careful in trying to make an overarching statement in the extremes, particularly when trying to determine the effects of something as complex as the Gulf War. Some of the long term effects are not fully known; more time is needed to determine if the Gulf ecosystem will recover to its pre-war state. Most experts speculate that it will not return to its original state, although complete data on the initial conditions of the Gulf ecosystem is also limited. The NOAA chief scientist explained the Gulf situation best in stating that "the Gulf (environment) has changed because of the 1991 conflict; how dramatically it has changed still remains to be seen."[28]

Sound Propagation in the Marine Environment: The Acoustic Thermometry of Ocean Climate (ATOC) Project

In many cases, the Department of Defense (DOD) and Navy are leading research to determine the environmental effect of military operations. The Congress established the Strategic Environmental Research and Development Program (SERDP) on November 5, 1990 through Public Law 101-510 to address environmental matters of concern to the DOD and Department of Environment (DOE). It is conducted as a tri-agency program with participation from the DOD, DOE, and the Environmental Protection Agency. The SERDP identifies and develops technology to enhance capabilities to meet environmental commitments, and fosters the exchange of scientific information and technologies among governmental agencies and the private sector. Funding for the SERDP has stabilized at about $50M per year for Fiscal Years 1995 and 1996.

Under the aegis of the SERDP, there are several programs directly addressing concerns articulated at this Symposium. Over $50M of SERDP funds are encumbered by the Acoustic Thermometry of Ocean Climate (ATOC) project.[29] By sending pulses of underwater sound through the deep ocean basins, scientists hope to settle the question of whether the predicted "greenhouse effect" has begun

to warm the planet. This experiment exploits the fact that the speed of sound in water depends on the water's temperature; the warmer the water, the faster sound propagates through it. Any significant change in the speed at which sound traverses several thousand miles of seawater would mean a change in the average temperature of the water through which the sound passed. By careful measurements repeated over a decade or so, it can be demonstrated that seasonal and annual trends are dampened and average global and/or basin scale ocean temperature changes could be resolved with sufficient accuracy to validate or discount greenhouse effect estimates. The generally accepted estimate of greenhouse warming at the ocean-atmosphere boundary is 20 millidegrees Celsius per year, decreasing exponentially to 5 millidegrees per year at the depth of the Deep Sound Channel. The ATOC experiment has the potential to demonstrate that a single quantitative global warming signal of 4-5 millidegrees per year at 1 kilometer ocean depth (average Deep Sound Channel depth) could be confirmed at the 95% statistical confidence level in a ten-year observation period.[30] Concurrently, a detailed picture of ocean thermal patterns can be deduced which has a direct bearing on the effectiveness of naval systems.

A strong marine biology program is tightly coupled to the ATOC research effort. Although permits from the National Marine Fisheries Service (NMFS) were in process, project execution was delayed in 1994 when protests from the Sierra Club Legal Defense Fund and the Natural Resources Defense Council forced the NMFS to reconsider and require full Environmental Impact Statements (EIS). Opinions regarding the effects of the experiment greatly varied. Hal Whitehead, a whale researcher at Dalhousie University in Nova Scotia, stated that "the effects of the sounds on marine mammals could range from deafening, through hearing loss, to disturbances in feeding or socializing, to long-term psychological effects."[31] Most scientists are convinced that there is no evidence that even extremely loud low-frequency noises emitted by supertanker propellers or the underwater blasts from offshore oil explorers and drilling platforms cause damage to marine mammals. The animals may be "annoyed" by the sounds, but they are certainly not endangered. Further, a report from the Ocean Studies Board of the National Academy of Sciences states that although there is an absence of hard data, "it appears that low-frequency sound, even at high levels, is barely audible to them."[32] As a calibration point, ATOC proposed transmitting a 260 watt, 60 to 90 Hertz pulsed signal 2% of the time - 20 minutes on, 4 hours off, every fourth day at a depth of 1000 meters. This noise signal is about one-tenth as powerful as the sound emitted by a typical supertanker.[33]

After nearly two years of discussion, the Marine Mammal Protection Act permit for an ATOC source in California was granted in the Spring of 1995. A permit for the Hawaii source remains in process. This situation is a typical example of policy and regulation that has proceeded without sufficient or reasonable knowledge of

actual effects. These regulatory events result in decreased National Security capabilities at increasing cost, without significantly improving the basis to construct a reasonable and workable policy.

The previous case studies illustrate the importance of a complete knowledge base in forming a complete assessment of the environmental threat of any type of marine operation. This knowledge base should consist of known initial environmental conditions, short and long term effects, and the actual impacts. After evaluating the case studies, an evaluation of the knowledge base concerning the environmental threat of military operations can be performed. This knowledge base is in fact very thin and, with few exceptions, contains a great deal of uncertainty. Thus, it is not surprising that very little capability exists to make adequate impact assessments except where there is a similar activity in the civilian or commercial sectors. For the most part, military research has focused upon the military effectiveness of weapons systems, rather than on the environmental effects thereof.

PART III: COPING WITH SCIENTIFIC UNCERTAINTY REGARDING THE IMPACT OF WAR AND MOOTW ON THE MARINE ENVIRONMENT

As the above discussion indicates, collection and analysis of data regarding the impacts of combat on the marine environment is a massive and complex undertaking. Even with concerted study efforts over time, it remains difficult to predict with a great deal of certainty the long term impacts of combat on the marine environment. Because decisions regarding military impacts on the marine environment will necessarily be made, by default if not through deliberate process, some means of dealing with this scientific uncertainty is required.

What are the ramifications of this scientific uncertainty on military commanders and policy makers? From a domestic law standpoint, the limited knowledge base creates a risk of being challenged for noncompliance with domestic requirements, with the ever-present possibility of disruptive enforcement action. From an international standpoint, the limited knowledge base creates other risks. With the benefit of historical hindsight, our activities at sea will be judged in light of actual long term impacts, whether adequately anticipated by the scientific community or not. It is the unavoidable burden of the policy maker to assume the risk of scientific uncertainty when striking the appropriate balance between unrestricted military operations and environmental protection.

Notes

*Dr. DeMarco is Director of Environmental Programs, Office of Naval Research. Commander Quinn is a Judge Advocate in the U.S. Navy.

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2. 40 C.F.R. §1508.5 (1978).

3. 40 C.F.R. §1502.22 (1986).
4. *Id.*
5. Executive Order No. 12114, 3 C.F.R. 356 (1979).
6. 16 U.S.C. §1536(c) (1973).
7. 16 U.S.C. §1538 (1973).
8. 16 U.S.C. §1533(b)(1)(A) (1975).
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10. 60 Fed. Reg. 28, 381 (1995).
11. Draft 50 C.F.R. §228.4(a)(5), *at* 60 Fed. Reg. 28, 384 (1995).
12. *Id.*
13. *Id.*
14. 40 C.F.R. §1506.11. During Operation Desert Storm, the Department of Defense did in fact consult with the Council on Environmental Quality regarding pursuit of various emergent military requirements in the United States without full NEPA compliance.
15. *Tennessee Valley Authority v. Hill*, 437 U.S. 153 at 185 (1978).
16. *Strahan v. Linnon*, Civil Action No. 94-11128-DPW, U.S. District Court, District of Massachusetts May 2, 1995.
17. *Supra* n. 15.
18. 16 U.S.C. §1536(h) (1973).
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Chapter IX

This Land Is Our Land: The Environmental Threat of Army Operations

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Executive Summary

War by its very nature is destructive to the environment. Sometimes environmental damage is intentional, sometimes it is collateral. Some environmental damage might be necessary in the sense it is unavoidable. The effects can be seen now and throughout history. The effects are associated not only with the actual combat, but also with pre- and post- combat operations. The acute effects we can see on CNN, but the chronic threats to our environment are often elusive. The acute effects can be exacerbated if the source of the threat is not clearly understood. The chronic effects are difficult to determine because the *source -pathway - receptor* process that actually results in damage is complex and plagued with uncertainties.

The *source - pathway - receptor* model gives an analytical tool that helps us apply science to understand the threat military actions pose to the environment. The sources of the environmental hazards from combat operations are many: the chemical, biological, nuclear and explosive weapons, the damaged factories and war fighting infrastructure of the enemy, the collateral damage to the civilian infrastructure, destruction of habitat, and the targeting of historical or cultural treasures. Today, the most significant environmental threat is unexploded ordnance that threatens indiscriminately and persists long after conflict ceases. Our technology gives us the ability to better remediate and mitigate environmental threats, but there is still much we do not understand.

Many of the environmental threats of military operations go beyond the physical science of the *source - pathway -receptor* model. The development of an environmental ethic is an evolutionary process. The environmental stewardship ethic our Army has recently professed may not be shared by all. Although we may have the technology, financial resources, legal framework and awareness to minimize the environmental threats of our weapons, many countries possess the capability to use weapons of mass destruction or low technology weapons without these controls. Environmental terrorism can find a variety of sources and interesting pathways to threaten a wide variety of receptors.

Military operations other than war (MOOTW) will require environmental stewardship and an understanding of the complex relationship people have with their environment. While we help nations for humanitarian reasons, we also need to provide them with affordable land management practices that can sustain their population and reduce adverse environmental impacts.

> In this battle between Athens and the Theban confederacy, the genius of Greece found a new outlet: slaughter without ethical restraint.[1]

In the battle of Delium, 424 B.C., the Athenians were at war with the Theban Confederacy. It was a custom at that time not to damage sacred areas, such as the waters at the Delium temple. In this operation, the normal customs gave way to more brutal military operations. The Athenians fouled the temple waters and also destroyed local vineyards and agricultural fields for a short-term military advantage.[2]

In the 2nd Century B.C., the Romans spread salt on the fields of Carthage to destroy crops and poison the soil.[3] Sherman's march to the sea during the Civil War destroyed Confederate agricultural and industrial resources, impacting the South's ability to wage war by terrorizing the South into surrender[4]. During those earlier times, there were fewer hazardous chemicals being manufactured and fewer industries that generated hazardous substances.

During WW II, the Soviets used scorched earth tactics on their own territory to deny Germany the resources it needed to continue its offensive. Rebuilding the industrial base would take longer and cleaning up contamination in those areas of Russia is, in many cases, just beginning.

In the Vietnam War, modern herbicides were used to destroy vegetation to deny the enemy concealment. The long-term effects of these herbicides are still unclear. Additionally, mass bombing of vegetated areas with napalm, forest fires, and bomb craters also threatened the habitat over large areas of Vietnam. In the 1980s, the Soviets destroyed crops and fields in Afghanistan to deny food to the Mujahadeen rebels. During Operation Desert Storm, the Iraqis looted agricultural resources, destroyed irrigation capabilities, and destroyed oil processing facilities. Again, some of these effects will take years to remediate.

The threat to the environment posed by warfare has increased throughout history as nations have developed more sophisticated means to destroy vegetation and otherwise degrade the land in order to deny its use by enemies. The chemicals used are more efficient, last longer, and have a greater potential to harm the land and its people than those used at any time in the past.

War, or more generally combat operations, has as its goal inflicting great harm on the enemy. Coincidentally, it damages the immediate environment and can produce collateral damage over extensive space and time. As seen by the introductory historical examples, the environmental damages can have adverse

side effects. An equally important factor to consider, beyond the magnitude of the acute damage produced, is the chronic threat or longevity of the impact.

Modern combat with nuclear weapons, persistent toxic chemicals, long-lived contaminates such as dioxins, and unexploded ordnance can have impacts over generations. Many of us have seen the "sick humor" characterization of the lone soldier standing in the midst of Armageddon declaring, "We won." As this paper will show, we have reached the point in our war fighting capability where we must consider the consequences as we develop and use these sophisticated weapons. We must also be very cognizant of the abilities of our enemies, because, as was proven at Delium, not everyone follows the rules.

It may appear that examining the science of how war impacts the environment is making a simple subject hard, but there are underlying and controlling principles that can demonstrate that the problem goes well beyond initial death and destruction. The best manner to examine this problem is to follow the chronology of combat. We can group the effects into those that result from preparing for war, the damage done during combat, the acute hazards left after combat, and finally the chronic hazardous residuals from all of the previous actions. In this form, we can more accurately compile and then sum the effects of combat to better understand its full impact.

The largest body of scientific analysis in the area of assessing hazards and defining risks comes from risk assessment of hazardous waste disposal operations. Here, the general model to determine the hazard of any action is to analyze the entire process by developing a *source - pathway - receptor* model.

A simple military example can best describe this model—chemical nerve agents. Chemical nerve agents are among the most toxic chemicals to humans. Brief exposure to a small quantity of agent can be fatal, absent proper medical assistance. Most agents work by either inhalation or absorption through the skin. The agents are delivered either by explosive munitions or through aerial spraying The agent is the *source*; air transport of the agent, soil dermal contact, inhalation or ingestion are *pathways*, and the soldier is the *receptor*.

A source is any physical, chemical, or biological agent that is capable of producing a specific harm or danger.

Explosives, projectiles, chemical weapons, biological agents, and nuclear weapons are obvious sources. There is a much longer and less obvious list of hazard sources, primarily chemicals, that are also essential in combat. They include: petroleum products, chemicals for biological and chemical decontamination, infectious wastes from medical facilities, spent batteries, pesticides, etc. The list is almost endless. Contaminant sources may also be an indirect result of military operations, such as waste water treatment facilities that discharge untreated domestic waste into water sources after being accidentally damaged by an artillery shell. The contaminant may be a direct result of military operations. This category

might include chemical weapons or destroyed war fighting materiel factories that result in contamination through spills of hazardous industrial material.

Each hazard source must be analyzed to determine its hazard potential, both acute and chronic, its persistence when released to the environment, usually referred to as *fate*, and its *transport* properties which define where and how it moves once released. Again, borrowing from the hazardous waste management process, we can classify hazards as corrosive, ignitable, reactive (explosive), toxic, and infectious. Most of these terms are self-explanatory.

Toxic substances are a complex group which has many subcategories. The first subgrouping of toxins is *acute* -those that can have an immediate impact on health; and second, *chronic* - those that require some period of time to produce an adverse affect. Another way to subdivide the broad classification of toxicity is by end point. *Carcinogenic* substances produce tumors, *non-carcinogenics* attack other organs and systems (Agent GB is a neurotoxin), and *genotoxic* substances can cause cells to mutate. Further, there are several classifications for substances which may produce birth or developmental effects.

Nations see and feel the immediate or acute effects of war and its hazards; however, it is fear and worry about the chronic effects such as seen with Agent Orange, nuclear exposure, or the unknown, such as the uncertainty associated with illnesses from the Persian Gulf, that can last decades. People fear and worry because there are no absolutes on cause/effect and uncertainties remain even when our conclusions are based on the best statistics. Effects on the ecosystem are equally uncertain.

We know that most agents—chemical, biological, or radiological—cause damage according to a dose/response equation—the amount of substance experienced per time of exposure. It is clear that a large dose of a substance over a short duration will cause harm, but less clear is that smaller doses for longer periods can also eventually produce damage.

For example, small doses of radiation over long periods are not seen as harmful. This is why there are allowable doses for x-ray technicians. There are also even larger allowable doses for patients receiving medical diagnostic x-rays because these exposures are less frequent. However, one time exposure to large doses, or long exposures to lower dosages, can and do cause harm. Even though the principle of the dose/response is completely accepted scientifically, the dose/response curve for chronic exposures is the least certain aspect of the very inexact science of risk measurement.

A pathway is necessary to transport a hazard from the source to a receptor. The pathway part of the model is the easiest to misunderstand or omit from consideration. The pathway will depend on the environmental conditions and the properties of the agent. Its importance can be well illustrated with our chemical agent example. Troops can sustain the fight in a chemical environment not because

of the source or the receptor, but because protective equipment interrupts the route of exposure (*i.e.,* inhalation, dermal contact). Our Mission Oriented Protective Posture (MOPP) gear protects a vulnerable receptor (the soldier) from an inhalation or percutaneous (through the skin) exposure to the agent, thus reducing the risk though the source remains an extreme hazard. Likewise, a non-mobile agent located in an area without receptors will not produce a risk because it lacks a mobile pathway.

Most agents are able to transport or move based on their inherent chemical and physical properties. The physical state of the substance can be classified as solid, liquid, or gas. Gases will disperse as dictated by the meteorological conditions and other properties like vapor pressure, diluting as they mix.

Liquids are the most common and the most difficult to analyze for fate and transport properties. Liquids at standard temperatures and pressures possess inherent properties of volatility and water solubility. These properties give liquids the opportunity to move through the environment. Henry's Law predicts the amount and rate of volatilization for chemicals. Highly volatile liquids are those that will rapidly transform to a gas at ambient temperatures, creating an air hazard. Unfortunately, the most volatile can also be the most toxic. Liquids exposed to or mixing with water will tend to flow with and/or dissolve into the water based on the solubility product of the substance. Toxic substances that are reasonably soluble can be transported by water and create hazardous surface water and groundwater plumes. This situation abets the transport of the contaminated water which then becomes the pathway for exposure. Liquids also partition into the soil through a series of chemical and adsorption reactions. There are considerable published data on partition coefficients which can help predict the fate of chemicals released to the soil. However, these data are very incomplete in comparison to the number of chemicals available today. A final fate for a liquid is through uptake into the biota of the environment. Here, it can be bioaccumulated (concentrated) until it becomes toxic to the environment or a pathway to another host becomes available. The biological response to chemicals is a difficult toxicological factor to quantify.

A solid may transport by air if the particles are small, can dissolve into water based on its solubility, or may react chemically or biologically in the soil. The most significant hazard from solids is the inhalation hazard from particulate forms of hazardous materials. In combat operations these exposures are generally short lived, and therefore will tend to be acute. Depending on the persistence of the solid particles and where they settle, there is a potential for chronic risk.

One important physical/chemical property of risk agents is their environmental persistence. Chemical, biological, and radiological agents may transform when released to the environment. These processes can be chemical reactions, physical degradation, or biologically driven reactions. The products of these reactions may

be more or less hazardous than the original agents. The persistence of an agent determines how long the agent will be hazardous to a receptor. This time is a function of the agent's decay properties and of the concentration that the agent stops being hazardous to the receptor.

There are numerous mechanisms that influence the decay or change of an agent in the environment. A few of the most common reactions are discussed in this paragraph. Hydrolysis is a reaction with water or water vapor which yields a different chemical. Photolysis reactions in air are those powered by sunlight which transform vapors and aerosols. Biological agents will either grow, die, or mutate based on the environmental conditions they encounter. Chemicals in the water and the soil are susceptible, under the proper conditions, to degradation, transformation, or bioaccumulation. For example, bioaccumulation of PCBs in fish that live in contaminated streams represents a hazard to organisms that eat the fish. Inorganic mercury in river sediments can be transformed by biological reactions from this immobile form into the soluble and extremely toxic methyl mercury form.

The acute impacts on people, the environment and other receptors from the active phases of combat can be immediately evident. The hidden impacts, particularly the lasting damage and persistent hazards, are just as real, but much more difficult to assess and quantify.

A receptor is any susceptible target that can be damaged by the agent. It may be man, but can also be the ecosystem of an area, or a species that is endangered by actions, such as the destruction of habitat. After the contaminant reaches the receptor, the contaminant may be ingested, inhaled, or come in direct dermal contact with the receptor. These methods of entry into the body are termed routes of exposure. The amount of contamination that reaches the receptor through each of these exposure routes, and the rate at which it is absorbed, are determined by many factors, as is the effect of various levels of accumulation.

It is important to characterize the conditions under which the receptors may be exposed. Physical characteristics of the receptor, such as body weight, lung capacity, and skin surface area, influence the amount of contaminant which actually enters the body. Inhalation rate, water uptake rate, and duration of exposure are three equally important variables.

Table 1 presents examples of application of the hazard model to the phases of military operations: pre-mobilization/mobilization, military operations, and post-conflict operations. It would be interesting to attempt to construct a more complete table, but that would require excessive time and research.

In the pre-mobilization/mobilization phase, explosives must be manufactured and assembled into bombs, mortars, grenades, etc. Manufacturing represents an acute and a chronic risk to workers. Workers continue to be injured in these operations. Further, the waste products of these processes represent acute and

C O M B A T P H A S E

Pre-Mobilization Mobilization	Source	Hazard Classification	Pathway	Receptor
Acute	training	physical damage	soil, water, air	training lands and flora/fauna
Chronic	spills during exercises, maintenance garrison operations	chemical, physical, biological	soil, water, air	training lands, humans, flora, fauna
Acute	industrial, production, accidental releases, explosions	chemical, physical, biological	air, water, soil	workers, population in the vicinity, flora, fauna
Chronic	releases of hazardous materials used in industrial production	chemical, physical, biological	air, water, soil	workers, population in the vicinity, flora, fauna
Military Operations				
Acute	explosives	physical	contact	soldiers, civilians, flora, fauna, land
	medical wastes	biological, physical, chemical	water, air, soil	soldiers, civilians, flora, fauna, land
	POL/hazardous waste spills	chemical, physical	water, air, soil	soldiers, civilians, flora, fauna, land
	chemical decon	chemical, physical	water, air, soil	soldiers, civilians, flora, fauna
	NBC weapons employment	biological, chemical, physical	air, water, soil	soldiers, civilians, flora, fauna, land
	war damage to industrial facilities that produce military items	biological, chemical, physical	air, water, soil	soldiers, civilians, flora, fauna, land
Post-Conflict Operations				
Acute	unexploded ordnance	explosive, chemical, physical	contact	civilians, land flora, fauna, soldiers
Chronic	disposal of contaminants, leaking weapons	biological, chemical, physical	air, water, soil	soldiers, civilians, flora, fauna, land

TABLE 1 - The Environmental Threat of Military Operations

chronic risks to people and the environment. We can mitigate these risks with engineering, but the mitigation is costly. The bottom line is that the more bullets you need, the larger the production capacity and the greater the potential for contamination. The long-term environmental effects of previous contamination are very complex and costly to mitigate.[5]

The Office of Technology Assessment, U.S. Congress, had this to say about the weaknesses in the nuclear weapons production systems that lead to contamination:

> Many factors have contributed to the current waste and contamination problems at the nuclear weapons sites: the nature of manufacturing processes, which are inherently waste producing; long history of emphasizing the urgency of weapons production in the interest of national security to the neglect of environmental contamination; a lack of knowledge about, or attention to, the consequences of environmental contamination; and an enterprise that has operated in secrecy for decades, without any independent oversight or meaningful public scrutiny.[6]

In military operations, explosives represent a physical risk to our enemies, the civilian population, and to our own troops through friendly fire and accidents. Our explosives can also cause secondary adverse environmental effects by improper weapons storage practices that release hazardous materials.

The effects of explosives are not only immediate, but can last into the post-conflict phase. Explosives represent a continuing acute hazard after conflict in the form of unexploded ordnance. Mines are the most obvious and well-publicized problem in the area. Cahill[7] estimates that as many as 100,000,000 mines have been emplaced in over 60 countries. The continuing death and destruction they are causing is well documented.[8] A second part of this problem is the bombs, rockets, artillery shells, etc., that did not explode and are now lost in the environment. Even today, European governments continue to identify and remove these types of ordnance from World Wars I and II battlefields. Fort Monroe, one of the older Army posts, still has unexploded ordnance from our Civil War that periodically are uncovered and have to be removed and properly disposed of as hazardous waste.

Table 1 shows a chronic hazard for explosives and unexploded ordnance. This risk comes from the release of hazardous substances from buried munitions as aging containers decay and leak. These released chemicals can dissolve into the groundwater where they can be transported to receptors who use this water for drinking.

The effects of Agent Orange during Vietnam show the far reaching environmental threats of military operations. During the military operation phase:

> At least 4.5 million acres of countryside, including 470,000 acres of farmland, were decimated by the 42 million kilograms (46,200 tons) of herbicides sprayed from

> planes, trucks, and boats between 1962 and 1970. About 5 percent of the country's hardwood forest and 744 square miles of mangrove forests were destroyed.[9]

The long term health risk for our soldiers, legal battles over liability, and resources diverted from other defense programs, are some of the post-conflict operations phase effects. The economic effects are still being felt. A recent article in the *Environmental Reporter* discusses a 100 million dollar cleanup bill from one of the factories that produced this herbicide. In addition to the health problems and legal liability issues, there is still the problem of the destruction of the forests and the ability of the land to recover.[10]

The effect of 2,3,7,8 tetrachlorodibenzo-p-dioxin (TCDD), the harmful component of Agent Orange, is dependent on numerous factors discussed previously. Its persistence measured in half-life (the time it takes for half the quantity of the component to decay) is from two hours[11] for leaves and foliage to ten years for soil.[12] Its toxicity, as previously mentioned, is extreme, with an LD_{50} (the dosage required to kill 50 percent of the test group) as low as 0.02 milligrams per kilogram. After the Gulf War, *Audubon* magazine asked four different authors to write a series of essays on "War and the Environment." One of the authors, Mr. James M. Fallows, discussed a trip to Vietnam. The time is not mentioned, but it appears to be in the late 1980s. He observed:

> Along Vietnam's central coast, in Da Nang and Nha Trang, I have seen a surprisingly large number of children whose limbs are missing or malformed. They are far too young to have been wounded in combat and because there are so many of them, it is hard not to think, as the Vietnam Government contends, that Agent Orange is to blame.[13]

He did not observe the acute effects of defoliation, but he did observe the chronic effects. Depending on original concentration levels and because of the chemical nature of TCDD, health problems in children years after Agent Orange was used could result.

Targeting of certain large facilities that support a nation's warfighting capabilities can have tremendous short-term effects and uncertain long-term effects on the environment. An example of such destruction is the RAF bombing of the Mohne Dam on 16 May 1943. Initial planning did not necessarily look at the environmental damage, but focused on the probable damage to the industrial base and the ability of Hitler to wage war.

> It is impossible to state the raid's exact effect on the German economy. Local German sources for the Mohne episode indicated that 1,294 people were dead or missing (including 573 foreigners, mostly Ukrainian women workers) and that 1,000 houses had been destroyed or damaged. Among other results, 11 factories had been destroyed and 114 damaged, 2,822 hectares (6,973 acres) of farmland damaged, 6,316 cattle and

pigs killed, 25 road bridges destroyed and 10 damaged, and various power stations, pumping stations, water and gas facilities put out of action.[14]

Although the Germans claimed minimal damage, some 20,000 personnel from the labor corps working on the West Wall were diverted to repairing damage done by the breaching of the Mohne Dam. It is easy to see why the dam was targeted and the definite military advantages that accrued to the Allies. The acute effect was significant. However, the long-term environmental effect is unknown. The damage to the environment was not analyzed at the time, and is difficult to assess retrospectively. It is unknown what types of factories were destroyed and what hazardous materials entered the Ruhr River. From the science presented above, we know some would hydrolyze, others would settle out, still others would bioaccumulate in organisms or biologically degrade.

We can leverage technology to limit the threat of military operations to the environment. Toffler and Toffler note that today, one F117 aircraft, flying a single sortie and dropping one bomb, can accomplish what it took B-17 Bombers flying 4,500 sorties and dropping 9,000 bombs to do during WWII, or 95 sorties and 190 bombs during Vietnam.[15] "In 1881, for example, the British fired 3,000 shells at Egyptian forts near Alexandria. Only ten hit their target."[16] During Operation Desert Storm, although the technology was present for the use of precision bombing, 93% of the bombs, representing 85,000 tons of TNT, were gravity type with 70% missing the target.[17] The fact that technology can provide more precise weapons does not mean that the technology will be used in all cases. However, it provides an additional option to the commander. With careful targeting and precision delivery, it is possible to limit some environmental damage without jeopardizing the success of the military operation.

The oil spills and deliberate destruction of the oil facilities in Kuwait is the most notable example of environmental damages from war in recent history. Most early coverage included dire predictions on the magnitude and duration of the impacts of this "environmental terrorism," as it was characterized by world opinion. Numerous articles covered the potential threat soon after the war. The attention dropped off quickly, however, as the oil fires were extinguished. It is interesting to compare the projections with later, more confirmed data. For example, the original estimate to stop the oil fires in Kuwait was 2-5 years.[18] Innovative technology developed in response to this problem was able to reduce this time to less than nine months.[19]

The original predictions of the impact of the smoke suggested large regional and even global damage. However, a final analysis found that meteorological conditions limited the impacts to the immediate region and fortunately also limited the ground concentrations to levels well below acute standards[20]. The shortened duration of the event greatly reduced the chronic risk to troops and the

local population. This is not to downplay the adverse effects that did occur, but there is a tendency to exaggerate war damage in all areas, not just environmental. Technology in this case prevented a more severe impact on the environment. The long term impacts of the oil residues on the desert are still being examined.

Oil was released into the Persian Gulf, supposedly to foul the water source for the Saudi Arabian water plants on the Gulf. The acute threat to the desalination plants that was originally feared was prevented by Coalition forces' efforts to minimize the environmental impact. On one occasion, a leaking oil system was specifically targeted so that the oil would stop flowing.[21] The long-term impacts of the oil on the aquatic ecology of the Gulf was a question of significant debate, again with early predictions suggesting large damage. Studies continue on the final impacts on the oil residues in the Gulf. The long-term ecological and economic impacts are uncertain.[22]

A similar spill in the Persian Gulf from the Al-Nowruz Oil Field in 1983 during the Iran-Iraq conflict allows a longer term analysis of the ability of the ecosystem to recover. Monitoring in 1989 showed no trace of pollution even at the lowest detectable levels. The absence of pollution was attributed to the presence of certain microorganisms that fostered biodegradation. Additionally, the climate and geological uniqueness of the Persian Gulf allows sunlight to penetrate the water for most of the year, which aids in the degradation process.[23]

Although the effects of the Operation Desert Storm oil fires and spills were minimal on a global scale, the long-term effects of military operations in the local area were more significant. The destruction of urban infrastructure in Kuwait destroyed waste water treatment facilities, resulting in raw sewage being emptied into the Persian Gulf. Resultant metal and pathological contamination levels differed depending on the specific outfall. Locally, this caused damage to fishing and recreation that depend on water quality. Destruction of water plants and electrical generators also had a large impact on the cultural environment.

The Iraqi infrastructure was also damaged during Operation Desert Storm. Embargoes on materials needed to rebuild facilities to ensure sanitary conditions for the Iraqi population is a long-term and somewhat indirect effect of military operations. Without the ability to fix sanitary problems, the population is subject to the pathogens which cause disease and epidemics. Because of the embargo, effects of military operations in Iraq will be more long lasting than those in Kuwait.[24]

The largest impact was the abandoned and unexploded ordnance scattered throughout Kuwait and in southern Iraq. The cost of finding and removing the ordnance inside Kuwait drains resources for other rebuilding. A continuing threat to the population remains because finding and removing the unexploded materials to 100 percent "clean" are not possible.

The requirement to dispose of war debris quickly causes the mixing of industrial and domestic waste. These facilities have an increased threat of methane gas problems and chronic pollution because the normal quality and regulatory controls were not enforced. PCBs from destroyed transformers pose an additional risk. Hazardous waste at abandoned or damaged industrial sites must be properly disposed of, requiring the expenditure of funds which are competing for other infrastructure projects. Untreated pathological waste from hospitals require special disposal to protect future health concerns.

Some eighty ships were believed to be sunk during the Persian Gulf War[25]. The contents of these ships and potential for pollution is uncertain. Testing has indicated higher levels of trace metals and hydrocarbons in the vicinity of one sunken tug. This demonstrates that these vessels are a potential source for long-term damage.[26]

The effect on the land and agriculture is uncertain. It took most European nations an average of 4.6 years to return to their pre-WW II production levels.[27] During the Persian Gulf War, normal practices were interrupted as farmers were displaced or were called to serve in the armed forces. As a result, crops were not harvested, irrigation stopped, top soil eroded away, and pest control ceased. Furthermore, deposition from the oil fires interacts with the soil and effects its fertility.[28] Irrigation, dependent on pumping, further suffers as power is interrupted and not available.

Without the constant care and application of pesticides and integrated pest management, the pest problem increased. Pesticides were looted and less available. New pests have been observed. New strains of species and new habitats were allowed to develop because the normal treatment of pests was interrupted by military operations.

Another long-term effect of military operations that is difficult to quantify is the loss of talented people, historical records and scientific equipment that could be used to provide better analysis of environmental problems and better strategies to recover.

Much research has been done on the environmental impact of massive armor movement in the desert environment, both in the Persian Gulf and in our national training center. The migrating sand caused by the disturbance of the delicate "desert pavement" could have long-term effects: dune movement, sand storms, closing of airports, and encroachment on agricultural settlements.[29] Vehicle tracks can remain for years depending on climatic conditions. The desert vegetation is quite sensitive to vehicle traffic and deposition of pollution caused by oil spills or fallout from oil burning.[30] Fifty-year old tracks are still visible in California desert areas where General Patton conducted exercise maneuvers.[31] In general, the soil in a desert environment is prone to more long-term effects than other soils.

Endangered species can be threatened by military operations. Habitats can be damaged and destroyed by military exercises causing long-lasting or irreparable harm to species. Long-term effects depend on the extent of the damage, contaminant residues, and ability of species, both flora and fauna, to recuperate.

The near-extinction of the European buffalo due to unmanaged killing to feed the German army during World War II is an example of direct impacts that can threaten species' existence. The lobster harvest in Vietnam was severely impacted because of military operations. Civilians overharvested the lobsters to meet U.S. in-theater demand and because military operations rendered their previous civilian occupations too dangerous. Short-term economic gains caused long-term depletion of the lobster supply. In World War II, upon finding out that Japan was using elephants to resupply their armies, elephants were targeted by military operations.[32] The cruelty of war to animals was again seen in Operation Desert Storm as the Kuwait Zoo was subjected to indiscriminate slaughter of animals by Iraqis.

Targeting or accidentally damaging chemical and nuclear facilities could pose a serious threat to the environment.

> Russian forces pummeled a Chechen oil refinery and sent shells dangerously close to an ammonia plant yesterday, raising the specter of a catastrophic explosion in the breakaway capital.[33]

In the Bosnian conflict, war damage to some fifty factories has polluted the Danube.[34] Hazardous chemicals involved in the manufacturing of weapons and explosives, metal plating and refining oil,[35] released into the environment pollute surface and groundwater. These pollutants can be passed down stream or settle in the river bottom to be a future problem once disturbed or dredged. Power plants that run treatment facilities are destroyed. The embargo policy of the current conflict in Yugoslavia also impacts the environment.[36] Because the necessary resources cannot be acquired, contamination continues unabated.

There is not a large volume of data describing the impacts of environmental damage from attacks on industrial facilities; however, examining the impacts of well-documented industrial accidents gives us an insight into what the likely results will be. Jiri Matousek, writing in 1990, identified ninety-nine chemical accidents this century with fifty-eight of them occurring between 1960 and 1990.[37] The following are a couple of examples.

In 1928, a ten-ton tank of phosgene gas ($COCL_2$) ruptured at a Muggenburg chemical plant. The effect was acute, with eleven dead and over 200 injured within a fourteen kilometer area.

On 3 December 1984, an explosion at a Union Carbide plant in Bhopal, India killed 2,300 and injured 30,000 to 40,000 people. The accident was due to a small amount of water being released into a storage tank of methyl isocynanate.

Collateral damage from military operations could cause a similar tank to rupture and be exposed to water. The Bhopal plant was an insecticide manufacturing plant similar to those in many countries.

The number of these types of chemical and nuclear facilities has increased dramatically this century. The effects of the nuclear accident at Chernobyl could also demonstrate the potential contamination and environmental effects of a nuclear facility damaged as part of a military operation.

Increased awareness of the environment has produced domestic legislation that added liability impacts to the environmental threats of military operations.

The environmental protection laws in the 1970s can be attributed to political pressure from the American people brought on by increased awareness of the environmental threat in general. In 1960, with the writing of *Silent Spring* by Rachel Carson, the environmental threats of the chemical industry were exposed. She observed that the 500 chemicals that were being added annually might have an effect on our ecology.[38] With increased legislative activities came sanctions and an increased awareness for both the military and civilian populations. Realization of the military threat to the environment lagged somewhat. However, by the time of the Persian Gulf War, the environmental threat of military operations was well discussed. The potential for the loser to compensate the victor for environmental damage is now possible. In its report to the Congress on the Gulf War, the Department of Defense stated that:

> The Ottawa Conference of Experts also noted UNSC Resolution 687 (3 April 1991), which reaffirmed that Iraq was liable under international law to compensate any environmental damage and the depletion of natural resources.[39]

From petrochemicals to complex inorganics, from chemical and biological contaminants to nuclear weapons, the environmental threat of military operations has increased dramatically. The threat to the environment posed by military operations is now a concern of the Army.

We have experienced a social change, an ethical change, in our concern for the environment. Roderick Nash, in his article "Do Rocks Have Rights?",[40] presents an ethical evolution from the pre-ethical past of concern for self through a future ethical view that concerns the environment. It is an evolutionary awareness and adjustment in ethical thinking. The ethics move from an individual ethic, concern for self, through family, tribe, nation and race, until a sense of humankind is reached. The future ethical direction is one in which our flora and fauna have worth and a sense of stewardship and responsibility is accepted. Much like Maslow's hierarchy of need, the steps are evolutionary and require the movement from one stage to the next.

Our world is in all the different stages of ethical evolution. Our potential adversaries may not share our ethical frame. Some underdeveloped nations, like

Somalia, are in the family/tribal stages of ethics and warfare. Rogue nations are on the rise. Military operations in Russia against the Chechen rebels can be seen as a national conflict, maybe even civil war. In South Africa we can see a racial ethical frame evolving, a concern for the equality of the different races.[41]

Our armed forces must adapt to a more advanced ethic that elevates concerns for the environment. The current military trend in armed conflict doctrine, as described in *Force XXI*,[42] stresses information processing and technological innovations which reduce the size of the forces, increase precision and lethality, and increase the land area of operations.[43]

Although our technology is advanced, that of our enemy may run the spectrum. It is likely that environmental threats and impacts on the land caused by U.S. forces could decrease, but the statistics on Operation Desert Storm bombing show the continued practice of using less sophisticated weapons that more adversely affect the environment. Additionally, the U.S. Army may have to devise ways to deal with the environmental threats posed by our adversaries.

We are in a constant transitional stage where warfare and ethics are connected. Our warfare evolution and our ethical evolution do not mean that everyone else is on the same level. An ethic that accepts a sense of responsibility for the animals, plants, and environment is not shared by all. The result is a variety of military operations that will have differing degrees of effects on the environment. As ethics and stewardship continue to play a more dominant role, effects of modern warfare on the environment can be minimized.

National and international laws protect the environment and could pose liability and adverse financial impact on military units not complying with prescribed norms. Pollution prevention initiatives reduce cost, reduce quantities of hazardous materials, reduce the number of hazardous materials, and engineer-in less environmentally threatening operations. Good training practices can minimize adverse environmental impacts and increase awareness of environmental effects. Technology provides the ability to identify impacts through remote sensing and increases our ability to remediate environmental effects.

Current environmental practices of our military during non-combat operations can mitigate the environmental threat. The nature of military operations other than war (MOOTW) puts importance on improving the infrastructure, public health, sanitation, environmental conditions, and quality of life for the nation we are assisting. We can expect to see our military in humanitarian operations and operations that place the military in a position of "stop the dying." Conflicts can be caused by adverse environmental impacts and scarcity of resources. The resolution of the conflict may depend on correcting/mitigating the environmental damage so the land can sustain its people.[44] The mission of U.S. forces is often not to seize land, but to return someone else's nation to a democratic form of government. The land must be returned to the nation with minimal

environmental cleanup requirements. Most nations we assist cannot afford costly environmental cleanup and infrastructure repair bills. Additionally, citizens, both in the nation we are assisting and at the home front, will only accept an environmental stewardship ethic.

In conclusion:

a. The environmental impact of military operations can be exaggerated in the short-term and very difficult to estimate in the long-term. It is therefore essential to apply science to accurately predict the impact of military operations and develop doctrine. Commanders can make the correct choice in military operations only when fully aware of the risks and uncertainties of the environmental consequences of their plans. There are times where military necessity dictates that military operations will adversely affect the environment. Our responsibility is to make that decision with as much accurate information as possible.

b. Our ability to mitigate the effects of pre-mobilization/mobilization activity has grown immensely, particularly in comparison with World War II standards. From the 1980s to the 1990s, waste generation in the defense industry was reduced by more than 60 percent. We are now much better suited to mitigate the damages from training activities.

c. Our ability to cleanup unexploded ordnance, particularly buried mines, continues to challenge available resources and technology. Mines are problems in countries throughout the world; they continue to claim even the most innocent victims. Detection and removal remains tedious, dangerous, and costly.

d. A full range of warfare is possible, and even though the U.S. military may be capable of mitigating the environmental impact brought on by armed conflict, there are other nations that are in different stages of the evolution of "environmental ethics"[45] which can pose a greater threat to the environment. The use of terrorist attacks specifically to damage the environment is also possible. An enemy might target a cultural or historical symbol for psychological effects much as the Athenians did at Delium.

e. To the maximum extent possible, we (the American military) must succeed in leading by example. Military operations must be accomplished in concert with environmental stewardship.

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Chapter X

The Environmental Threat of Military Operations

William M. Arkin*

The Gulf War created one of the largest single man-made disasters in history, oil fires greater in number than all previous well fires added together, and slicks more than two to three times the size of the world's previously largest oil spill. Damage to the coastal and desert ecology of southern Iraq, Kuwait, and Saudi Arabia—from the fires and spills, from military fortifications and land mines, from attacks on oil and petrochemical installations, and then from intense operations by two of the largest tank armies ever assembled—produced widespread destruction and disrupted a fragile balance. Routine movements and encampments produced solid waste on a huge scale. Oil fires produced historically unequaled emissions of hydrocarbons. An otherwise vibrant and fertile Euphrates River valley was damaged by a breakdown of irrigation and agricultural systems, and continues to deteriorate due to ongoing Iraqi ecocide practices in response to insurgency.[1]

Environmental damage provoked a torrent of speeches, legal briefs and journal articles, conferences and meetings; intense lobbying by environmental and humanitarian organizations; was the subject of proposals for a "Fifth" Geneva Convention and other new protections; was discussed extensively in the Sixth Committee of the United Nations General Assembly in 1991 and 1992; deliberated by an International Committee of the Red Cross (ICRC) Experts Group; on the agenda at the United Nations Council for Economic Development (UNCED); considered in the U.S. Government's review of Iraqi war crimes; and included in the Pentagon's final report to Congress on conduct of the war. "Data" about the oil spills and fires even has its own place on the Internet.

On the surface, all the huffing and puffing has produced little. Before the war, the Bush Administration in National Security Directive 54 (NSD-54) designated destruction of Kuwait's oil resources as one of three "unconscionable acts" (along with the use of chemical and biological weapons and acts of international terrorism) for which the Iraqi leadership would be held personally responsible. President Bush's eleventh hour letter to Saddam Hussein forcefully threatened a "terrible price" in retaliation.[2]

Governments such as Jordan were early doomsayers about the environmental threat, agitating strongly for action after the war. But politics intruded and they

subsequently retreated, not wanting to condemn their resilient and powerful neighbor. Nor did Kuwait or Saudi Arabia formally "charge" Iraq. Neither wanted to further fan the flames, nor potentially open up their own half-hearted clean-up efforts and environmental practices to greater outside scrutiny.

Yet war crimes have not been pursued and since Operation Desert Storm, U.S. Government lawyers (and those of most other developed nations) have argued that the problem is neither scope nor shortcomings in international law but compliance and enforcement of existing law.[3] International "political-strategic" considerations thus take priority over protection of the environment. In this regard, it could be said that advances of the last two decades in environmental accountability have been superseded by a version of "supreme national interest." Which is to say, if a credible scenario for reverberating environmental destruction on a global scale could be postulated, then likely the conduct of warfare would take precedence over the potential widespread harm.

The environmental calamity and lack of formal legal action in the Gulf War may thus seem an odd context in which to claim that environmental protection has advanced, yet the true story of the war is one of a high degree of sensitivity to environmental destruction by both sides, and at least by one, significant self-imposed constraints, many corresponding to the very restrictions that Coalition government lawyers eschew. The environmental issue was "used" by both sides in a cynical way, but public visibility of the environmental dimension of warfare was also highly influential. Though Iraq's destruction went unpunished, if there is a silver lining, it is that it and other environmentally destructive practices that Pentagon lawyers otherwise condone have essentially become "outlawed" in common practice.

For the American side, much of the history regarding political constraints on air power and ground operations remains shrouded in secrecy. The reason seems obvious: Government lawyers and military planners have little interest in seeing public expectations codified as new combat doctrine, policy, or law.

I remember having an argument with a military lawyer in 1992 as to whether the U.S. Marine Corps even used napalm in the air war. The lawyer asserted that they did not, and I told him that I had Marine Corps documents specifying how many and by which airplanes. His denial is instructive about the real impact environmental and humanitarian considerations have on US military operations. Though napalm is not an "illegal" weapons *per se*, its employment for particular purposes probably no longer is possible without provoking negative publicity. So public announcements of its use are suppressed, even denied.

Napalm was "tried" as a weapon in the Gulf War, as were fuel air explosives, mostly to aid in the breach of Iraqi defenses and to overcome minefields and fire trenches. For these purposes, the weapons did not make much of an impression, and their value to commanders in comparison with other weapons did not exceed

the potential public outcry that might have resulted from their use, particularly as anti-personnel weapons (even against enemy soldiers).

The use of napalm is just one example of where the gap between political/public-relations constraints and "legal" constraints seems to be growing. The result can be strange justification for the "need" to bomb targets that are otherwise politically stigmatized. Take dams for instance. Though legitimate targets,[4] because of their potential for unleashing enormously destructive forces on the civilian population, they acquired political sensitivity through the Korean and Vietnam wars, so much so that their attack is generally restricted even in U.S. military doctrine.[5]

The bombing of Iraqi dams was suggested early on as a punitive measure, potentially in response to the use of chemical weapons, but was rejected.[6] No prohibitions *per se* against hitting hydroelectric power stations collocated at dams were incorporated into Operation Desert Storm rules of engagement. Nevertheless, military lawyers argued that in such attacks, dams and dikes would have to be avoided "for humanitarian/political reasons." Little more arose on the subject until after the war. Then the same lawyers counseled that dams and dikes *should be bombed in future conflicts*, less the option to bomb them be lost in some legal prohibition that merely follows common practice.[7]

The cases of napalm and dams are instructive. For regardless of official "legality," there are a set of weapons and targets that now seem to be particularly "controversial," receiving a disproportionate degree of attention in the news media, and within the humanitarian community. Weapons include napalm, fuel air explosives, depleted uranium, cluster bombs, anti-personnel mines, riot control agents, incendiaries, and blinding lasers. Targets that have acquired negative repute, mostly because of adverse human or environmental effects, include water, dams, nuclear power plants, electrical power, oil and petrochemical facilities, as well as other civilian utilities.

It is important to establish from the beginning that the environment does not just mean trees, or birds, or water. It is the natural surroundings that support human life. Within the intricacies of international law and practice, environmental protection is increasingly and inextricably a part of human rights law: "It is now recognized that personal growth and happiness—fundamental human rights—cannot be achieved in a severely damaged environment."[8]

Some theorists in the military—prophets of "information" or "parallel" warfare—assert military benefit behind the reverberating impact of destruction of interconnected systems. Yet loss of electricity (or computer networks) is not just relevant for its speculative second- or third-order potential to disable air defenses and command and control. The first order effect on water purification and distribution, and the resulting environmental and direct harm to human health, is of greater consequence.

In this paper, I examine more closely three environmental issues which bear upon the conflict between the ethic of protection and military necessity. In the case of oil fires and spills, I argue that the lack of international action to hold Iraq responsible weakens the existing standards of protection. I argue that the reason for lack of action on the part of the United States is that responsibility for the oil damages proved more complicated than the popular charge of "environmental terror" suggested. In the case of destruction of electricity, I argue that the concept of "collateral damage" needs to be expanded, given the ability of military technology to limit direct but not indirect effects of destruction on systems indispensable for the survival of the civilian population. I then look at the set of stigmatized weapons and speculate that their reputation is born not just of particular cruelty or suffering, but because of a sense of their "toxicity" and long-term damage. The emotional debate regarding the "Gulf War syndrome" should prove instructive with regards to the many unknowns and risks that lurk behind new technology. In fact, the public conscience seems a finer gauge of the "legality" or "desirability" of new weapons than does the formal review process undertaken by Pentagon lawyers.

Spills, Fires, and Dilution of International Law

Environmental damage in the Gulf War occurred both as a result of acts of deliberate destruction and malice, and as an unintentional byproduct of military activity. The vast majority of the fires and spills were the result of Iraqi sabotage of Kuwait's oil industry. But Coalition military action contributed.[9]

In December 1990, Iraqi engineers detonated six oil wells and ignited basins of oil in Kuwait, practicing procedures for the subsequent larger scale destruction. Iraq then packed wellheads with plastic explosives, linking them together with electrical and mechanical detonators. On 21 January, less than a week after the start of the air war, 60 wells in and around Al Wafrah in southern Kuwait were exploded. At about the same time, refineries and storage tanks at Mina ash Shuaybah and Mina Abd Allah, on the coast south of Kuwait City, were also set ablaze. On the eve of the ground war, on or about 22 February, Iraq started to detonate the remaining wellheads, the majority centered in the Al Burgan oil field south of the Kuwait International Airport.

In all, Iraq destroyed 732 wells,[10] 20 oil and gas gathering stations,[11] and damaged four refineries,[12] as well as downstream oil facilities such as gathering manifolds, tank farms, pipelines, and offloading facilities. Two of four natural gas booster stations were also damaged. Of the 732 sabotaged wells, 650 were set aflame, and 82 were damaged sufficiently to cause them to gush oil uncontrollably.[13]

Fires, as well as large amounts of oil exposed to the natural environment, created noxious gases and massive amounts of inhalable particles. At the height of the fires, the amount of soot emitted was estimated at 5000 tons per day, the equivalent

of 46 million heavy-duty diesel trucks, roughly nine times the number in the United States, driving at 30 miles per hour.[14] The last well fire was extinguished on 6 November 1991. But that is not the end of the story.

What really happened in the rapidly moving and confusing war? On the first morning of the air war, U.S. Navy planes bombed an Iraqi oil platform and loading terminal in the northern Gulf at Mina Al Bakr, evidently creating the first oil slick. On the seventh day of the air war (23 January), U.S. Navy aircraft struck the Iraqi tanker *Amuriyah* while underway in the northern Gulf, as it was refueling a *Winchester* class air-cushioned landing craft. The resulting secondary explosions destroyed the tanker. That same day, an *Al Qadisiyah*-class tanker moored on the coast of Kuwait was also destroyed by French aircraft. Two days later, two oil slicks were reported in the Gulf, one in the vicinity of where the *Amuriyah* was sunk, and the other at the Sea Island terminal off the coast of Kuwait. Intelligence analysts believed the second slick had been started by Iraq, and oil from the terminal quickly extended down the coast of Saudi Arabia.

On 25 January, U.S. Navy units engaged an Iraqi mine-laying vessel near the Sea Island terminal, setting a part of the terminal and surrounding water afire. Another oil slick was identified further north on the Kuwait coast on 26 January. It was evidently the result of Coalition bombing of the Ras al Qulayah naval base and surrounding facilities. Oil continued to leak from the Mina Al Bakr terminal and the *Amuriyah* tanker nearby. On 27 January, U.S. Navy aircraft engaged two additional tankers riding high in the water northeast of the Bubiyan Island channel. Both tankers were struck and one was later reported aground and leaking oil on the north bank of the Khorr Abd Allah. A pipe on the southern tip of Bubiyan Island, originating in the Rawdatayn oil field in northern Kuwait, was also observed leaking oil, evidently from Coalition bombing. The tanker *Hittin* was reported on fire at the Mina Al Ahmadi north pier on 28 January. On 2 February, intelligence observers reported that a slick emanating from the northern Gulf was growing larger; origin unknown.

I go through this somewhat confusing and highly abbreviated chronology because the official story looks very different. What the public heard during the war was that around 19 January, Iraq opened valves at the Sea Island terminal, pumping oil directly into the Gulf. Soon after the start of allied military action, moored Iraqi tankers south of Kuwait City also supposedly began discharging oil into the Gulf. There is no mention of their being bombed, or of other tankers being targeted. The Saudi oil storage facility and refinery at Al Khafji, just south of the Kuwaiti border, was shelled by Iraqi artillery, and it began to leak oil. Saudi oil platforms were damaged by drifting Iraqi sea mines. Later, Iraqi tankers anchored northeast of Bubiyan Island also began expelling oil, but again no mention of the attacks by Coalition aircraft. Damaged Kuwaiti refineries and oil tanks along the coast are not

revealed. Many of these were the objects of aircraft bombing and intense naval gunfire. The combined spill was eventually, estimated at 7-9 million barrels.

The considerable fallout from the oil-fire smoke plume immediately effected public health, and ultimately damaged significant land and water areas. Because the plume remained between 1500 and 13,000 feet, and was never detected above 18,000 feet, the global spread in the upper atmosphere was minimized. Nevertheless, smoke had a regional climatic effect—area surface temperatures were below normal by as much as 10 degrees Fahrenheit in 1991. There was a decline in agricultural productivity in the region, as well as increased animal mortalities due to ingestion of oil-tainted vegetation. Oil continued to leak into the Gulf from a number of sources until late May or early June, adding as much as one-half million barrels beyond the end of the war. Eventually, oil fouled 400 miles of Saudi coastline, inundating salt marshes and tidal areas with oil, and killing marine life and diving birds.

There is little evidence that Coalition attacks on tankers or oil targets balanced military necessity against whatever environmental damage might occur. But the bombing of tankers was an internally controversial matter. Indeed, while some planners and commanders outside the Navy argued that tankers were off limits, the top Navy commander argued that they were as legitimate as electrical power or other civilian utilities.[15]

In the end, Iraqi environmental destruction dwarfed the various U.S. contributions, but war crimes were not pursued for various forensic reasons, and the full story of the destruction of oil could not be told for fear of implicating the United States. Pentagon lawyers asserted that the 1977 Environmental Modification Convention (the ENMOD Convention),[16] and 1977 Additional Protocol I to the Geneva Conventions[17] "were not legally applicable in the Persian Gulf War."[18] What is more, they concluded that even had Additional Protocol I been in force, the damage would not have applied because it did not reach the required legal threshold.[19] The U.S. Government even stated in its environmental report to Congress that Iraqi actions "were probably done to slow or prohibit an amphibious landing of Coalition forces in Kuwait and Saudi Arabia,"[20] thus giving credence to future justifications of environmental destruction as having military purpose. However, as all the evidence shows, the Iraqi actions were acts of pure destruction where the military implications were secondary or even inadvertent. The Iraqis knew that they were destroying the environment. Indeed, there is evidence to indicate that they thought that their actions would have an even greater impact.

Destruction of Electricity and Redefining Collateral Damage

Before the Gulf War, destruction of electrical power production in warfare had been pursued with varying effects yet with identical results: The nullification of electrical energy was a minor, if not inconsequential, incumbrance to military

operations. Though some argue that the Gulf War was a significant departure from previous experiences, the military impact seems to be no different than World War II, Korea, or Vietnam. Sufficient damage was done to the national grid to essentially cause a nationwide blackout within a week of the U.N. deadline, but military capabilities powered by central electrical grids were also the object of intense direct attack and they were degraded mostly because of that direct bombing, not because they lost power. Coalition electronic warfare and countermeasures efforts, and suppression of enemy air defenses (SEAD) directed against modern electronic accoutrements of war were also unprecedented in their scope and intensity, further diminishing the unique and circumscribed impact ("non-lethal") of destroying electrical power.[21] Though the destruction of electricity was pursued honestly as a means to effect Iraq's air defenses and command, control, communications, and intelligence (C3I), and may have helped to paralyze Iraqi armed forces, the civilian impact outweighed the military benefit.

Iraqi electricity was largely cut throughout the country starting from the first night of the war (17 January) and production did not resume until the late March-April time frame. Iraqi officials state that allied bombing knocked out 75 percent of the country's electrical generating plants. Unanticipated by air planners,[22] the civilian life-support system was brought to a halt, and everything from heating and air conditioning; to water supply, purification and sewage treatment; to medical care was interrupted. In March 1991, United Nations envoy Martii Ahtisaari reported on the civilian effects of electrical bombing:

> The role of energy in Iraq is especially important because of the level of its urbanization (approximately 72 per cent of the population lives in towns and cities), its industrialization, and its prolonged, very hot summers.

Ahtisaari's U.N. field mission found that, "all previously viable sources of fuel and power (apart from a limited number of mobile generators) . . . are now, essentially, defunct . . . . Additionally, there is much less than the minimum fuel required to provide the energy needed for movement or transportation, irrigation, or power generators to pump water and sewage." Iraq's biggest recovery problem in the post-war period was the destruction of its energy and power resources—"an omnipresent obstacle to the success of even a short-term, massive effort to maintain life-sustaining conditions in each area of humanitarian need."[23] "Iraq in recent years had become a high-tech society dependent on electric power generation for irrigation, medical services, communications and industry," another early field report concluded.[24]

Electrical bombing proved one of the most controversial aspects of Gulf War bombing,[25] and the Defense Department, in its Final Report to Congress on the

Conduct of the Gulf War, explained the purpose and reasoning behind the attacks. The destruction of electricity, it said,

> had a cascading effect, reducing or eliminating the reliable supply of electricity needed to power NBC weapons production facilities, as well as other war-supporting industries; to refrigerate bio-toxins and some CW agents; to power the computer systems required to integrate the air defense network; to pump fuel and oil from storage facilities into trucks, tanks, and aircraft; to operate reinforced doors at aircraft storage and maintenance facilities; and to provide the lighting and power for maintenance, planning, repairs, and the loading of bombs and explosive agents. This increased Iraqi use of less reliable backup power generators which, generally, are slow to come on line, and provide less power. Taken together, the synergistic effect of losing primary electrical power sources in the first days of the war helped reduce Iraq's ability to respond to Coalition attacks. The early disruption of electrical power undoubtedly helped keep Coalition casualties low.[26]

It was a laundry list of potential and postulated effects, but not a report of observed or provable impact.

From the beginning, the military recognized the intimate connection between destruction of electricity and the livelihood of the civilian population. "Because of our interest in making sure that civilians did not suffer unduly," General Norman Schwarzkopf stated on 30 January, "we felt we had to leave some of the electrical power in effect, and we've done that."[27]

Air war planners made attempts to limit the overall impact of shutting down the electrical system on the civilian population, focusing targeting on distribution as opposed to generation subsystems, and limiting the amount of destruction at harder to repair generating facilities. Because of confusion in the target guidance and the normal fog of war, the limitations were not followed. In addition, planners were wrong in their assumption of rapid U.S. or international intervention because of Iraq's defeat to repair the utility. The effect on the civilian population was unprecedented.

The Gulf War Air Power Survey (GWAPS) concluded that nullification of electrical power was achieved with "remarkably little collateral damage."[28] Collateral damage, here defined as incidental and unintended civilian casualties sustained in the course of attacks, was indeed extremely low. Ignored, however, is the far more injurious secondary collateral damage caused by *accurate* attacks. The air war spared Iraqis from the indiscriminate effects of urban bombing, yet efficiently disabled society's support systems, with the attendant short- and long-term impact. Civilian harm was compounded by the fact that civilians were otherwise spared the direct effects of bombing in the highly discriminate "strategic" bombing campaign. The result magnified the electrical effect.

Electricity is so important to modern societies that attacks that could have severe effects on the noncombatant population should be prohibited. The U.S.

government accepts as customary law, as codified in Additional Protocol I, the prohibition on the deliberate starvation of civilians, and the intentional destruction of food, crops, livestock, and other objects indispensable to their survival. The U.S. also does not object to Article 54 of Additional Protocol I which protects "drinking water installations."[29]

But these restriction do not extend to destruction of installations that could result in identical secondary effects. Thus, the destruction of dual-purpose power grids are not restricted from attack. The ICRC list of categories of objectives of "generally recognized military importance" created in 1956 included:

> installations providing energy mainly for national defense . . . plants producing gas or electricity mainly for military consumption.[30]

The U.S. defended the right to attack integrated power grids as legitimate targets throughout the negotiation of the Additional Protocols.[31] U.S. negotiator Ambassador George Aldrich noted that "of course we knew about power grids and of course we were not going to agree to a provision that prohibited attacks on key elements of power grids." Aldrich says attacks are allowed on power stations—including nuclear reactors—that service central grids because the grid itself is an example of "regular, significant and direct support of military operations" as defined under Additional Protocol I.[32]

Yet proof of "definite military advantage" required by the customary law definition of Article 52 of Additional Protocol I is difficult. Writing recently in *The Journal of Strategic Studies*, a former "Checkmate" Gulf War planner concludes that while the destruction of the Iraqi electric grid

> almost certainly had a significant impact on several key Iraqi subsystems, the specifics are still unknown. Until we get much greater access to Iraqi officials and documents we will not know how badly the loss of the electric grid hurt the Iraqi C3 network, its NBC research and development complex, or air defense system.[33]

The author argues in the forthcoming "Power Failure: Destruction of Electricity in the Gulf War," based upon extensive research in Iraq, that in fact destruction of electricity had negligible military advantage for the United States.

Indeed, destruction of any target must also be shown not to be "excessive" in relation to whatever military advantage is being sought. Destruction of civilian electrical power generation is thus a violation of the prohibitions in customary international law against "any military operation which is not directed against a legitimate military target or which can be expected to cause incidental death, injury or damage to civilians that is clearly excessive in relation to the direct military advantage of the operation."[34]

Toxicity on the Battlefield

The Gulf War witnessed the most extensive and widespread use of submunitions in the history of conflict, the first combat use of depleted uranium weapons, and large-scale mining both on land and at sea. The result was a significantly increased explosive ordnance disposal and battlefield remnants problem.[35] Ironically, while Iraqi use of mines and the land mine problem has received the majority of attention, cluster bombs were far more injurious and damaging, and depleted uranium far more emotionally and symbolically important.

Cluster bombs and land mines (often called "grenades" in ground-delivered weapons and "bomblets" in air-delivered weapons)[36] are nothing new, and they hardly received the attention in the Gulf War reserved for smart weapons. Most people are even unaware of what submunitions are, let alone that they constituted a quarter of the weapons dropped by aircraft. Some 61,000 were expended, totaling some 20 million bomblets (Table 1).[37]

Table 1
Air-delivered Cluster Bomb Expenditure in the Gulf War

Type	Effect	Number Expended			
United States		Air Force	Navy	Marines	
CBU-52/58/71	Frag	21,696[a]	0	0	
CBU-59	APAM	0	0	186	
CBU-78	Gator	0	148	61	
CBU-87	CEM	10,035	0	0	
CBU-89	Gator	1,105	0	0	
Mk20 Rockeye	AA	5,345	6,814	16,014	
Subtotal		38,181	6,962	16,261	61,404
Allied		RAF			
BL-755		8			
CBU-87		387			
Subtotal		395			
Total					61,799[b]

AA: anti-armor with poor fragmentation and incendiary capability; APAM; anti-personnel/ anti-materiel; CEM: Combined effects munitions (light anti-armor and anti-personnel); Frag: incendiary/fragmentation bomblet with no anti-armor effect; Gator: air-delivered magnetically fused heavy anti-tank and tripwire anti-personnel mines.

[a] Sources vary on the number of CBU-52/58/71 cluster bombs expended, some stating 17,831. The higher official number was chosen; see GWAPS, Vol. III, Part I, at 234 & 256.

[b] Does not include a complete count of allied use of cluster bombs, particularly French and Saudi. The BL-755 is a British-manufactured cluster bomb.

Sources: U.S. Department of the Air Force, Gulf War Air Power Survey (GWAPS), Volume III, Part I, p. 235, Volume IV, Part I, p. 65, Volume V, Part I, pp. 550-552; House of Commons, *Preliminary Lessons of Operation Granby* (July 1991), p. 86.

Modern submunition weapons consist of two main types—those delivered by aircraft, and those by surface artillery or rockets.[38] Weapons carrying submunitions disperse them over a large area, thereby increasing the impact area of an attack. The large number delivered in a dispenser increases the density of explosives in a target area, with submunitions designed to strike every few feet or so. An artillery or rocket barrage, or an air attack, typically can disperse thousands of submunitions within a small space, a common target area in planning roughly being an area 100x50 meters. Obviously, an attractive feature for militaries is that the submunitions are inexpensive given the area of destructive potential in comparison with unitary explosives.

Even though weapons are being designed to be more and more "reliable," because submunitions are used in such large numbers, "reliability" as it relates to unexploded ordnance and environmental damage on the battlefield (and in civilian locations when cluster bombs are chosen for an urban attack) has actually declined (within the context of otherwise discriminate attacks). As the use of smaller and smaller munitions increases, more and more numbers are expended in battle. The large number of weapons, individually less expensive, intentionally more expendable and simply designed, creates more of a lingering problem. Small, inexpensive electronic fuses are more prone to malfunction under severe conditions.

In the Gulf War, cluster bombs delivered from medium and high altitudes experienced "excessively high dud rates."[39] Despite contact fuses and secondary firing systems, an enormous number failed to detonate, particularly when landing in soft sand and shallow water or mud. Ground-delivered (*e.g.*, artillery or rocket) submunitions also experienced high dud rates. Estimates vary from the conservative 2-5 percent claimed by manufacturers, to up to 23 percent observed in acceptance and operational tests, to an average of 10-30 percent observed on the ground after the war in Iraq and Kuwait.[40] Even a conservative five percent estimate means that some 2.2 million unexploded bomblets were left behind, almost half from air-delivered bombs.

With the proliferation of remotely delivered submunitions, both air and ground delivered, emplacement of mines by the individual soldier is increasingly a less important theater operation in high technology warfare. Air-delivered cluster bombs and scatterable artillery-, helicopter-, or rocket-delivered submunitions will predominate in the future. There are a number of implications from this "advancement:" placement is by necessity more random, more driven by short-term considerations on the battlefield given the flexibility of the weapon.

Well over one million anti-tank, anti-personnel, and sea mines were emplaced by Iraq in the Gulf War. In terms of clean up, the difference between cluster bombs and mines is that grossly insufficient procedures and requirements exist to recover unexploded bomblets scattering the battlefield. With ground- and air-delivered

submunitions, there are no restrictions and the very nature of the weapons often defies precise mapping of their expenditure.

During the Cold War, the military was less concerned about submunition placement and dud rates because weapons were developed to defend against a Soviet offensive in Western Europe, one which would not have required U.S. soldiers to occupy "submunition-contaminated" areas.[41] With the large scale use of submunitions in a rapidly moving offensive battlefield, such as the Gulf War, however, friendly hazards were immediately felt. One government study concluded that during Operation Desert Storm at least 25 U.S. military personnel were killed and others were injured by submunitions fired by their own forces.[42] Troops with the U.S. 1st Armored Division, for example, said that the principal threat they faced was "unexploded ordnance believed to have been left over from . . . earlier American bombardment."[43] The situation was so critical that large scale use of cluster bombs by aircraft was restricted during the ground war for fear of friendly casualties[44] and, in some instances, "ground movement came to a halt because units were afraid of encountering unexploded ordnance."[45]

In the immediate aftermath of Operation Desert Storm, unexploded submunitions killed or injured more than 100 soldiers and military explosive disposal specialists.[46] Post-war injuries to U.S. soldiers from unexploded ordnance on the battlefield, particularly because of the excessive "dud rate" of ground-launched submunitions, became so serious that Congress requested that the General Accounting Office (GAO) investigate manufacturing, purchasing and handling.[47]

The military effectiveness of submunitions varies, but it far from clear that either ground- or air-delivered submunitions, or land mines, have advantages that outweigh the human and environmental impact. Aerial cluster bombs proved ineffective in the armor attack role during the Gulf War, and with the emergence of a wide variety of precision anti-tank weapons, they seem less and less attractive weapons for such attacks in the future (particularly where U.S. forces have to operate). Use of cluster bombs against urban targets, given the constraints of restricting collateral damage and civilian effects, seems counterproductive. Indeed, cluster bombs used in strategic bombing attacks proved a bit of a nuisance. Given their properties of small explosions and broad dispersal, they greatly complicated battle damage assessment as the noticeable impact on stationary targets (as opposed to larger explosives of 500-2,000 pound class) was difficult to assess via reconnaissance.

There are circumstances in which the use of cluster bombs might be beneficial in terms of limiting collateral and reverberating damage. In the Vietnam War, for instance, cluster bombs were used to attack anti-aircraft artillery guns that had been placed on embankments and dikes in the north. The guns could be suppressed without doing harm to the irrigation and water control structures.

The large scale use of Iraqi mines also proved more of a nuisance than a decisive military instrument. Mines, in order to be effective against modern forces, need to be maintained and protected by covering fire, and are therefore not as attractive for large scale use by sophisticated militaries as are submunitions. In fact, the new generation of scatterable mines (delivered from artillery, aircraft and ground dispensers) which entered arsenals in the 1980's will likely replace hand-sown mines in the future. These can be mass emplaced in mobile or tactical settings, and employ influence sensors and electronic timers.

When submunitions and mines are evaluated for their military effect in many missions—particularly given the emergence and success of smart weapons—or when their use is measured against the collateral effects, they are far less attractive. The effects are immediate and measurable. In the case of depleted uranium (DU) as an anti-tank weapon, the effects are more subtle.

Depleted uranium is used in armor penetrators, both in bullets shot from aircraft (and ship-based gattling guns) and in tank ammunition.[48] Because of uranium's density and physical properties, it is attractive as an alternative to tungsten or other more expensive metals. In the Gulf War, about 14,000 DU tank rounds were consumed (4000 fired in combat) and 940,254 30mm DU bullets were fired by A-10 aircraft.[49] The health and environmental risks remain unclear; the U.S. Army itself states that there is a "need for more data on potential health and environmental consequences associated with the chemical and radiological characteristics of DU."[50] A January 1993 GAO report found that the Army did not have a comprehensive DU battlefield management plan.[51]

As a result of medical screening at the end of the war, some 35 soldiers were found to have traces of uranium in their urine. Approximately 22 soldiers may have retained embedded DU fragments. Early in reporting on the so-called "Gulf War syndrome," DU was identified as a possible contributing factor to the unexplained illnesses being reported by veterans (and was the subject of considerable Iraqi propaganda).[52] Though no one now believes that DU is ultimately causal, the Army admits that the long-term health effects have not been well defined,[53] and the proliferation of DU weapons to other nations will undoubtedly increase whatever risks do exist.

The latest thinking on the "Gulf War syndrome," in fact, is that a syndrome as such does not exist. A comprehensive U.S. Department of Defense survey of 10,000 veterans and family members found no link to biological or chemical weapons, environmental pollutants, hazardous chemicals, depleted uranium, oil well fires, vaccines, or diseases unique to the desert. Undoubtedly, at least amongst the veterans groups and a segment of the population, Gulf War syndrome will join missing in actions (MIAs) in Southeast Asia or even UFO's as grand "cover-ups" of the government. Yet it is the long list of potential or even suspected toxins that is interesting. Far more work is needed to understand the emergence of new

technologies or the interaction of certain substances uniquely found on the battlefield in terms of the human and natural environmental impact.

Though environmental "modification" has been a subject of discussion for many years, newer technologies may actually be increasing the attractiveness of use of the environment for warfare. Despite U.S. denials, enough documentation exists to indicate that the Iraqi-perpetrated oil conflagration and the creation of significant amounts of smoke had a significant impact on U.S. air operations, Iraqi intentions or not. Laser-guided bombs and other sensor-dependent weapons (*e.g.*, television, electro-optical, and infrared) are severely constrained by atmospheric conditions. In the Gulf War, many laser-guided weapons were unable to acquire targets because of adverse weather conditions (*i.e.*, rain and fog), and optical guided weapons were definitely constrained by the smoke of oil fires. The conditions were both natural and man-made. For instance, smoke pots were used to obscure targets and had an effect on target acquisition and bombing.

In addition, night vision devices are dependent on a certain environmental condition. That is, it has to be dark. In the Gulf War, oil well and trench fires, even fires caused by routine bombing, caused havoc with night-vision devices. The combined effect was obscuring nearly all natural ambient light, which night-vision devices need for illumination. By contrast, too much light causes a sort of "blooming" effect.[54] Perhaps in the face of night attacks, a future countermeasure would be the large scale creation of certain types of illuminations that would not expose friendly forces.

As "smart" weapons become more commonplace, perhaps the countermeasures to smart weapons guidance systems—including modifying atmospheric conditions[55]—will be an important part of a nation's defense. Thus the weapons/counter-weapons battle, coupled with more discriminate precision weapons and urban bombing constraints, as well as new concepts of information ("systemic") warfare, could serve to make the potential for devastation or disablement of civilian systems, with inadvertent environmental damage, even worse in the future.

It may be important to reaffirm the original intent of the ENMOD Convention,[56] to strengthen the disarmament effect in the face of advances in military technology, as well as to more rigorously define environmental damage that might (or should be) applicable. Yet advances in military technology were not even discussed at the 1993 ENMOD Convention review conference.[57]

Legal Protections for Environmental Destroyers?

A number of international agreements have been developed over the years with the very goal of limiting damage to the environment during war. Until the 1970s, treaties relating to the conduct of war focused on humans and their property. Provisions of the laws of war dealing with military necessity and proportionality

related to the environment, but then attitudes began to change and environmental consequences began to be questioned as something other than the otherwise inevitable accompaniment of military action.

Though armed conflict is always a tragedy for the environment, in the Gulf War, there was a perception prior to Operation Desert Storm that the venue for war, and the intensity of modern weapons, would mean that the war would be more environmentally destructive. But since global calamity did not occur, and the war's end was not defined, the environment was made subordinate to the political needs of the victorious States.

Some would think that the environmental destruction that did occur might serve as a catalyst to bring the various agreements, laws, and proposals under review. But this has so far not been the case. There has been a lot of procedural wrangling, yet with the snuffing out of the last oil fire, and the shift of television's gaze away from the Gulf, interest in any real change also was extinguished.

In civil society, a nation is now, in theory, to be held responsible for the environmental damage it causes. But we have not yet arrived at the point of any punishment for actions during warfare, let alone any clarity as to the illegality of the acts perpetrated. Over the years, a lack of enforcement against Iraqi use of chemical weapons and other grave breaches may have signalled to the Ba'athist Government that "international law" is a matter for posturing and propaganda, and not action.[58] When napalm or others weapons are used experimentally or cynically as examples to avoid restrictions in international humanitarian law, similarly the message to other nations is that the secrecy surrounding them and their use might be proof of their worth, as well as signs of American duplicity in its compliance with international law.

The destruction of Kuwait's oil resources and Iraq's electrical production were both done intentionally, both with precision. The juxtaposition of the two is merely to illustrate that one is clearly "illegal" and the other is not. The massive oil spills and oil fires polluted air, land, and water, threatening fisheries, ocean ecology, and public health. The bombing of electricity started a cascade of misery for the Iraqi civilian population, severely affecting irrigation, water treatment, sanitation, and agriculture. The boundary between "property damage" as specified in the law of war and natural (*e.g.*, environmental) damage is increasingly thin.

Most in the humanitarian and environmental community have argued that the *scale* of the oil spills and fires constitutes a breach of international law. However, to focus solely on scale leaves unresolved the main issue of contention between the military establishment and the humanitarian community, the presumption of military necessity. Regardless of scope, there is no evidence that the performance of Iraqi military forces was degraded by the loss of electricity. This is not to say that there was no effect, it is just that it is difficult to assert that a calculation of the destruction of the civilian utility can be shown to have "definite military

advantage." Despite numerous annoyances, the oil spills and fires also did not create any definable military advantage for Iraq.

None of this is to set up a counter-legal analysis. The codified law is useful to set the parameters that might constrain military operations to improve protections for the civilian population and the environment. Yet it is the political and public opinion constraints that are much more important in terms of cutting edge technologies or new situations. On close examination, the record of the Gulf War shows that when military leaders or Washington decision makers restricted destruction, they did so largely to avoid adverse public opinion, not because technicalities in the law were the issues of concern.

Greater awareness of environmental "stewardship" and pollution prevention by soldiers and commanders has created an obvious ethos of responsibility for long-term effects of operations, and a receptiveness to limitations.[59] There is no doubt that the very nature of modern society—urbanized, industrialized, increasingly dependent on electrically-driven amenities—makes it more vulnerable to disruptions. "A strategic center of gravity for most States beyond the agrarian stage is the power generation system," Colonel John A. Warden, the air war principal designer, wrote after Operation Desert Storm. "Without electrical power, production of civil and military goods, distribution of food and other essentials, civil and military communications, and life in general becomes difficult to impossible. Unless the stakes in the war are very high, most States will make desired concessions when their power generation system is put under sufficient pressure or actually destroyed."[60]

The Gulf War thus should portend the kind of damage we might see in the future. Mass destruction weapons did not kill masses, precision weapons did. The successful and precise destruction of intended targets had a devastating effect on the civilian population, one more reminiscent of bombing associated with old-style urban attacks and not a squeaky clean smart war. Environmental calamity on a global scale seems to have been avoided, but the very efficiency of harm, and the lingering impact of such a short conflict, should portend the potential for war's greater potential for destructiveness.

Notes

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1. Though the full explanation and cause of the drying of Iraq's southern marshes remains unclear, and U.S. interest in the subject is as much anti-Saddam as pro-environment, it is another important ecological cost of the Kuwaiti invasion; *see* CIA, "The Destruction of Iraq's Southern Marshes," IA 94-10020/NESA 94-10021/RTT 94-10054 (Aug. 1994).

2. On 9 January 1991, Secretary of State James Baker told Iraqi Foreign Minister Tariq Aziz in Geneva that "we will not allow any attempt to destroy Kuwaiti oilfields;" *INA Reports Minutes of 'Aziz-Baker Meeting*, FBIS-NES-92-009, 14 Jan. 1992 at 27. "Let me state . . . that the United States will not tolerate . . . destruction of Kuwait's oil fields and installations," President Bush wrote to Saddam Hussein. The letter stated that the acts would require the "strongest possible response" from the United States, one that would make the Iraqi leader and his country "pay a terrible price;" The text of the letter is contained in SIFRY & CERF, THE GULF WAR READER at 178-79. *See*

discussion of NSD-54 and the resulting response to the environmental damage in ARKIN, TARGET IRAQ: A DOCUMENTARY HISTORY OF AN AIR WAR (forthcoming, 1997).

3. "A general consensus exists that there is adequate protection for natural resources and the environment in the law of war as now codified; what is required is a greater respect for the law of war, and an awareness of the potential effect particular military operations or means and methods of warfare many have on the environment;" Department of Defense, Report to Senate and House Appropriations Committees in response to Senate Report 102-154, 19 Jan. 1993 at 8.

4. International Committee of the Red Cross (ICRC), COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949 at 667.

5. *See* Parks, *Air War and the Law of War*, 32 Air Force L. Rev. 202-18 (1990). The Air Force manual on the laws of armed conflict, written before the 1977 Additional Protocols, specifies that the selection of a dam as a target is "a matter of national decision at appropriate high policy levels;" Department of the Air Force, *International Law—The Conduct of Armed Conflict and Air Operations*, AFP 110-31, 19 Nov. 1976 at 5-11.

6. Soon after taking up his position as head of the Special Planning Group, Brig. General Glosson proposed that three dams—two on the Euphrates and one on the Tigris—be bombed if Iraq used chemical weapons; ATKINSON, CRUSADE, THE UNTOLD STORY OF THE PERSIAN GULF WAR (1993) at 86.

7. U.S. Central Command (CENTCOM) Legal Lessons Learned, Joint Uniform Lessons Learned System (JULLS) Number 31861-06100, Title: Legality of Targeting Dams and Dikes (18 Mar. 1991).

8. Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, Int'l Rev. of the Red Cross, 567-578 (Nov-Dec 1991).

9. ARKIN, *supra* n. 2 at ch. 13.

10. Kuwait's four fields consisted of some 2000 wells, some 1300 of which were active and producing on 1 August 1990. At the time of Iraq's invasion, about 850 of the 1300 producing wells (including wells in the Kuwaiti-administered portion of the Neutral Zone) were involved in pumping oil. Reports have varied as to the number of wells sabotaged, with the Kuwaiti Petroleum Company reporting in September 1991 that 749 wells were damaged, with a total of 610 fires. Most of wells (circa 450) were in the greater Burgan field (Maqwa, Ahmadi, and Burgan) south of Kuwait City; 60 were located in the Minagish, Umm Gudair, and Wafrah fields in southern Kuwait; and 100 were located in the Rawdatayn, Sabriya, Bahra, and Ratya oil fields in northern Kuwait.

11. Twenty of 26 gathering stations that separate oil, gas and water recovered from underground reservoirs were damaged or destroyed. The upstream facilities of the oil collecting and distribution system consist of an additional main station and 23 substations at Wafrah.

12. Kuwait had three refineries, at Mina Al-Ahmadi, Mina Abd Allah, and Mina ash Shuaybah. The refinery at Mina Al-Ahmadi was slightly damaged. The refinery at Mina Abd Allah was significantly damaged, evidently both from sabotage and from Coalition bombing. Mina ash Shuaybah received minor damage. A fourth refinery at Mina Az Zawr, owned by Saudi Arabia, was totally destroyed.

13. Some of the flowing wells were ignited because the release of sulfur dioxide was less toxic than hydrogen sulfide gas emitted from the crude wells.

14. U.S. Congress, Senate Gulf Pollution Task Force, *The Environmental Aftermath of the Gulf War*, at 23.

15. Center for Naval Analysis, "A View of Desert Shield and Desert Storm as Seen From COMUSNAVCENT," at 5-12.

16. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, 31 U.S.T. 333; *reprinted in* 16 I.L.M. 88 (1977).

17. Protocol I Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (1977), *reprinted in* 16 I.L.M. 1391 (1977).

18. U.S. Department of Defense, FINAL REPORT TO CONGRESS, CONDUCT OF THE PERSIAN GULF WAR, Apr. 1992, at 606.

19. "During that treaty's negotiation, there was general agreement that one of its criteria for determining whether a violation had taken place ("long-term") was measured in decades. It is not clear the damage Iraq caused, while severe in a layman's sense of the term, would meet the technical-legal use of that term in Protocol I. The prohibition on damage to the environment contained in Protocol I were not intended to prohibit battlefield damage caused by conventional operations and, in all likelihood, would not apply to Iraq's actions in the Persian Gulf War;" FINAL REPORT TO CONGRESS, *supra* n. 18 at 625.

20. Environmental Protection Agency Interagency Task Force, REPORT TO THE CONGRESS, UNITED STATES GULF ENVIRONMENTAL TECHNICAL ASSISTANCE, FROM JANUARY 27-JULY 31, 1991, Under PL 102-27, Sec. 309, at 4.

21. Most of the discussion here comes from Chapter 9: Electrical Surgery, *in* ARKIN, *supra* n. 2; Arkin, *Power Failure: Destruction of Electricity in the Gulf War* (forthcoming).

22. Air Force theorists never considered the impact of their destruction on water distribution, purification, and sewage; Department of the U.S. Air Force, Gulf War Air Power Survey [hereinafter GWAPS], Vol. I, Part I, at 117. One former 'Checkmate' officer writes that after CNN reported that electricity and water were off in the Rasheed

Hotel, planners were surprised. Ironically, it seems like this had been overlooked by the air campaign planners. This author vividly recalls polling the 'Checkmate' staff the first night of war and discovering that no one had realized that with the loss of electricity the water supply would also fail. Later discussions with personnel who were in the 'Black Hole' in Riyadh at that moment indicated they were also caught by surprise.

Kuehl, *Airpower vs. Electricity: Electric Power as a Target For Strategic Air Operations*, 18 J. of Strat. Stud. 265 (Mar. 1995) at n. 57.

23. Report to the U.N. Secretary-General on humanitarian needs in Kuwait and Iraq in the immediate post-crisis environment by a mission to the area led by Mr. Martti Ahtisaari, Under Secretary-General for Administration and Management, S/22366 (20 Mar. 1991).

24. Physicians for Human Rights, *Press Statement: Iraq Mission April 3-10, 1991*, at 3 (15 Apr. 1991).

25. In particular, see Harvard Study Team, *Harvard Study Team Report: Public Health in Iraq After the Gulf War*, May 1991; International Study Team, *Health and Welfare in Iraq After the Gulf Crisis: An In-Depth Assessment*, Oct. 1991; FINAL REPORT TO THE CONGRESS, *supra* n. 18; GWAPS Summary Report, and Vols. I-V; and ATKINSON, *supra* n. 6 at 30-31 & 37-38.

A year after the war, the internal debate appeared in the news media. See, for example, *Defeat of Iraq Sparks Debate on Which Air Role Was Crucial, 27 Aviation Wk & Space Tech. 60-65*, Jan. 1992; Gordon, *Pentagon Study Cites Problems With Gulf Effort*, The New York Times, 23 Feb. 1992, at A1.

Two reports written by Air Force officers examine electrical targeting in a critical way: Griffith, Jr., *Attacking Electrical Power*, School of Advanced Airpower Studies (Air University), Thesis, 1993 (later to appear in ESSAYS ON STRATEGY XI, (Petrie ed. 1994) at 183-223); and Kuehl, HQ USAF, Directorate of Plans, Strategic Planning Division, *Airpower vs. Electricity: Electric Power as a Target for Strategic Air Operations*, (1993), later published *supra* n. 22.

26. FINAL REPORT TO CONGRESS, *supra* n. 18 at 150. *See also id.* at 125, 127 & 612 for further discussion of the justification for bombing electricity.

27. USCENTCOM News Briefing, General Schwarzkopf and Brig. General Glosson, Riyadh, Saudi Arabia, 30 Jan. 1991. *See also* DOD News Briefing, Lt. General Kelly, 11 Feb. 1991, 4:05 PM.

28. *Supra* n. 25 GWAPS, Vol. II, Part II, at 342-43.

29. U.S. Department of the Navy, *Annotated Supplement to The Commander's Handbook on The Law of Naval Operations*, NWP 9 (Rev. A)/FMFM 1-10 (1989), para. 8.1.2.

30. *Supra* n. 4 at 632-33.

31. Aldrich, *New Life for the Laws of War*, 75 A.J.I.L. 780 (1981): "Proposals to add other items to the list [of prohibited objects of attack under Article 54] such as communication systems or food distribution and fuel reservoirs were rejected by the conference, as such items are often, if not always, important military objectives."

32. Aldrich, *Progressive Development of the Laws of War: A Reply to Criticisms of the 1977 Geneva Protocol I*, 26 Va. J. Int'l. L. 706 (1986). *See also* Department of the Air Force, *International Law—The Conduct of Armed Conflict and Air Operations*, AFP 110-31 at 5-16 (19 Nov. 1976).

33. Kuehl, supra n. 22, at 258.

34. The language is taken from the Statement by Robert B. Rosenstock, United States Representative to the Sixth Committee of the 46th Session of the United Nations General Assembly, in the Sixth Committee, on Item 140, Exploitation of the Environment as a Weapon, Oct. 22, 1991 (Press Release U.S.U.N. 65-(91)).

35. Drones, Iraqi surface-to-air missiles (SAMs) falling back to earth, cluster bomb casings, jettisoned ordnance and fuel tanks, all contributed remnants on the battlefield and to urban collateral damage. It was debris that had greater visibility if for no other reason than that intentional damage from attacks was otherwise so circumscribed.

36. In this paper, ground- and air-delivered submunitions, as well as hand-sown ones (mines) are collectively referred to as submunitions, particularly since the subject mostly relates to their effects on the civilian population. This is in agreement with U.S. military doctrine which defines a scatterable mine as "a mine laid without regard to classical pattern and which is designed to be delivered by aircraft, artillery, missile, ground dispenser, or by hand;" Joint Chiefs of Staff (JCS), "Joint Doctrine for Barriers, Obstacles and Mine Warfare," Joint Pub 3-15, at GL-8 (30 June 1993).

37. Combined with another 13.6 million ground-delivered submunitions, the total number of individual cluster bomb-related explosives delivered on Kuwait and Iraq was some 34 million. The overall number is calculated on the basis of some 100,000 artillery projectiles, 10,000 Multiple Launch Rocket System (MLRS) rockets, and 60,000 air delivered cluster bombs. The number of submunitions carried by each weapon is 72 per dual-purpose improved conventional munition (DPICM) 155mm projectile, 644 per MLRS rocket, 247 per Mk20 Rockeye, 220 per CBU-52, 650 per CBU-58, 717 per CBU-59, 650 per CBU-71, 60 per CBU-78 (45 anti-tank and 15 anti-personnel mines), 202 per CBU-87, and 94 per CBU-89 (72 anti-tank and 22 anti-personnel mines).

38. Over ten types of submunitions were used by Coalition forces in the Gulf War—155mm and 203mm artillery projectiles, MLRS rockets, and aerial-delivered cluster bombs (Rockeyes, and CBU-52, -58, -71, -87, -89 "cluster bomb units" as well as British and French cluster bombs).

39. *Supra* n. 25, GWAPS, Vol. II, Part I, at 261. *See also* GWAPS, Vol. IV, Part I, at 222.

40. US military officials estimate that three to five percent of their artillery projectiles and bombs failed to explode, although soft sand may have increased the rate up to one-third in some areas. The GAO found that as many as 23 percent of MLRS rocket submunitions failed to explode during acceptance testing; US Congress, General Accounting Office (GAO), "Operation Desert Storm: Casualties Caused by Improper Handling of Unexploded U.S. Submunitions," GAO/NSIAD-93-212, at 4 (Aug. 1993).

One U.S. Army expert estimates 15 percent of submunitions did not detonate—"Sometimes you get 50 percent duds;" Brady, *Kuwaitis dying from old menace: unexploded bombs*, Fort Worth Star-Telegram, 12 Jan. 1992 at 1. According to another report on unexploded ordnance, "Reports from Kuwait have said that around one third of submunitions failed to explode due to landing in soft sand;" Nash, *RO in Kuwait: The Big Clean-Up*, Mil. Tech., at 59 (July 1991). One U.S. expert was quoted as saying that "at least 600 bombs, rockets and artillery shells dropped or fired every day of the war will have failed to explode and thus constitute a continuing hazard somewhere in the war theater;" Ringle, *After the Battles, Defusing the Debris*, The Washington Post, 1 Mar. 1991 at B1. *See also* Hedges, *With a Bang! Bang! Bang! War Cleanup Goes On*, The New York Times, 15 Oct. 1992 at A12; Atkinson, *Doing a Bang-Up Job: With Cautious Gusto, Troops Explode Iraq's Munitions*, The Washington Post, 26 Mar. 1991 at A9.

41. GAO, "Operation Desert Storm: Casualties Caused by Improper Handling of Unexploded US Submunitions," op.cit., at 4.

42. *Id.* The GAO investigation solely related to the Army's experience with its own M42, M46 and M77 artillery and rocket-delivered submunitions. According to *EOD Alert*, Marine Corps Gazette, (Jan. 1994) at 9, 30 U.S. soldier deaths and 104 injuries were caused by unexploded ordnance.

43. Jehl, *Pool Report with the 1st Armored Division*, (released by the Defense Department), Los Angeles Times, 25 Feb. 1991.

44. "Large quantities of cluster bombs were never used after the start of the ground war because of the rapid advance of allied forces and the fear that they would encounter undetonated bomblets;" U.S. Congress, General Accounting Office (GAO), "Limitations on the Role and Performance of B-52 Bombers in Conventional Conflicts," B-252126, at 61 (22 June 1993).

45. GAO, "Operation Desert Storm: Casualties Caused . . .," n. 40 at 9. As The Washington Post observed on 3 March, "units of the Army's 1st Cavalry Division that had suffered no combat casualties in their unopposed drive through southern Iraq have seen several of their soldiers killed or wounded by bombs or mines in the area they are holding;" Branigan, *Gruesome Examples of Horrors of War Abound in Iraqi Desert*, The Washington Post, 3 Mar. 1991 at A34.

46. Sloyan, *US Bomblets Killed 14 Americans in Gulf War*, Newsday, 19 Sept. 1991 at 4. *See also Growing Death Toll in EOD Operations*, Jane's Def. Weekly, 20 June 1992 at 1061; Brady, *Kuwaitis dying from old menace: unexploded bombs*, Fort Worth Star-Telegram, 12 Jan. 1992 at 1.

47. The request was made by Senator Chris Dodd (D-Conn.) after reservists from a Connecticut army unit were injured by submunitions. *See Little Bombs, Big Questions*, (Editorial), Hartford Courant, 5 Jan. 1992 at C2; Wagner, *Army Completes Probe of Desert Storm Deaths*, Hartford Courant, 3 Dec. 1991 at C9.

48. DU is also used as counterweight components of aircraft elevators, landing gear, rotor blades and radar antennae; ballast in satellites, missiles and other craft; armor plate, and in small quantities, as a catalyst in some mines.

49. U.S. Department of the Air Force, Table, "A-10 Operation Desert Storm Munitions Expended," n.d. (1991).

50. U.S. Army Environmental Policy Institute, "Health and Environmental Consequences of Depleted Uranium use by the U.S. Army," Summary Report to Congress, at 2 (June 1994).

51. U.S. Congress, General Accounting Office (GAO), "Operation Desert Storm: Army Not Adequately Prepared to Deal With Depleted Uranium Contamination," Jan. 1993, GAO/NSIAD-93-90.

52. *See* Arkin, *The Desert Glows—With Propaganda*, Bull. of Atomic Sci. (May 1993).

53. U.S. Army Environmental Policy Institute, Summary Report, *supra* n. 50 at 4-56.

54. Kane, *Night Vision Goggles and Desert Storm*, Marine Corps Gazette, at 42 (Feb. 1992).

55. The military clearly recognizes the constraints of operating smart weapons that are unable to counter natural and man-made atmospheric effects. In the future, new weapons and sensors such as the inertially aided munition (IAM), the sensor fuzed weapon (SFW), synthetic aperture radar (SAR), millimeter-wave (MMW) radar, gas laser radar (LADAR), and brilliant anti-tank (BAT) submunitions seek largely to neutralize the effects of bad weather and limited visibility.

56. *Supra* n. 16.

57. Before the ENMOD, and leading up to the negotiations, the U.S. Government (July 1972) renounced the use of climate modification techniques for hostile purposes, even if development was proved to be feasible (and desirable) in the future. The original Congressional Resolution (1973) calling for an international agreement referred to prohibition of activity "as a weapon of war." The bilateral talks agreed to by Presidents Brezhnev and Nixon in July 1974 took on an even broader mandate, namely "to overcome the dangers of the use of environmental modification techniques for military purposes." The resulting convention narrowed the original scope considerably.

58. Adam Roberts speculates that "from the international community's failure to react to the original attack on Iran in 1980, from its failure to do anything much about Iraq's use of gas, and from its actively continuing trade even in weapons, Saddam Hussein may well have learned the lesson that he could ignore international institutions and law, including the laws of war, with impunity;" Roberts, *The Laws of War in the 1990-91 Gulf Conflict*, Int'l Sec. at 140-141 (Winter 1993/94).

59. Some of the environmental concern seems contrived, such as the Clinton Administration's creation of a Deputy Under Secretary of Defense for Environmental Security in May 1993. Similarly, the Pentagon's 1994 draft "non-lethal" weapons policy defines non-lethals as "discriminate weapons that are explicitly designed and employed so as to incapacitate personnel or materiel, while minimizing fatalities and undesired damage to property *and the environment*," without defining why such limitations are desirable or required. *See* Office of the Assistant Secretary of Defense (Special Operations/Low-Intensity Conflict), Memorandum, Subject: Draft Non-Lethal Weapons Policy, 21 July 1994 (emphasis added).

60. Warden, *Employing Air Power in the Twenty-first Century, in* THE FUTURE OF AIR POWER: IN THE AFTERMATH OF THE GULF WAR, (Shultz & Pfaltzgraff eds. July 1992) at 64.

Chapter XI

Comment: The Environmental Threat of Military Operations

Dr. Arthur G. Gaines, Jr.*

We like to think of nature's beauties, to admire her outward appearance of peacefulness, to set her up as an example for human emulation. Yet under her seeming calm there is going on everywhere—in every pool, in every meadow, in every forest—murder, pillage, starvation, and suffering.

A.C. Chandler[1]

Introduction

This paper attempts to introduce a natural, and Earth sciences perspective into a deliberation otherwise dominated by legal scholars. This paper reflects the personal, and perhaps unusual, views of an academician trained in the sciences but conducting research at a marine policy center for the past nine years. It is motivated by the observation that the prevailing tenor of this discussion of environmental aspects of warfare seems disproportionately influenced by the emotional perception of the environment prevailing in these times—influenced either by accepting that viewpoint or, especially, by reacting to it. The first part of the paper outlines a view or construct of the extent and the manner in which the concept of environmental protection can reasonably be applied to military operations and warfare. The second part addresses two interrelated topics, both of which should benefit from tempering by a scientific perspective:

a. The environmental impacts of warfare relative to those of other human activities, and as compared to the scale of natural disasters; and

b. The relevance of these comparisons to the concept of "war crimes against the environment."

The conclusions to which I lead in this admittedly rhetorical examination are the following: In prosecuting humanitarian goals for peace or the alleviation of human suffering, it may be best not to look too narrowly to the natural environment for the paradigms. And, in refining thoughts on "crimes against the

environment," an objective examination of the natural world may not provide the sharp contrasts we seek.

Environmental awareness and sensitivity as a political ideology is growing worldwide, with the emergence and increasing power of the "green" movement and related vanguard activities. An "environmental ethic" has made inroads into civil law, international law, and, as reflected in the title of this conference, into the calculus of warfare. Most people agree there are numerous benefits to this trend, despite short-term frustrations.

Some of us spanning the science/policy fields would like to see the environmental movement incorporate better scientific information to ensure that policy and natural systems are not at odds. An environmental movement based on misconceptions has little advantage over one that ignores the environment altogether. Unfortunately, numerous inconsistencies and misconceptions seem to abound despite the general public impression that the environmental movement is firmly based in science. We often lose track of the fact that suffering, destruction, and risk are not limited to the realm of humankind. As indicated in the opening quotation from Professor Chandler's book on parasitology, nature is far from the model of peacefulness that many of us would like to believe.

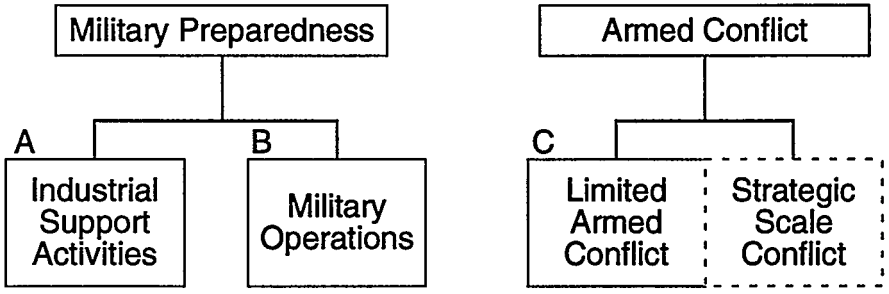
Military Impacts on the Environment

Military activities and their impacts can range over a wide scale, from comparatively benign impacts associated with the peacetime domestic or bureaucratic military setting, through the catastrophe of total war. This broad spectrum can be divided into two categories—the part associated with military preparedness, and the part associated with armed conflict (Figure 1). The demarcation criterion is the element of hostility: anticipated or actual exchange of hostile fire, loss of life, or imminent invasion.

Military Preparedness

Military preparedness includes all activities necessary to plan, staff, arm, maintain, and deploy national military forces, in the absence of actual armed conflict, during phases of both overall military expansion or overall military contraction. Industrial support activities related to military preparedness (Figure 1, A) as illustrated during wartime and the Cold War years, can embrace a large part of a nation's commercial and industrial sector. These activities are conducted largely by civilians on contract to the military establishment, largely on private rather than government property, and often near population centers. Such activities include production, testing, storage, and transportation of war materiel; research and development; and other activities involved in industrial support of the military. These activities involve working with perhaps the most toxic, infectious, explosive, and radioactive materials used in modern society, and often

Figure 1
Environmental Impact of the Military



in very large quantities. Nevertheless, to a large extent, if not in its entirety, this portion of military preparedness ought to be fully subject to the entire range of national environmental impact criteria. It should be possible to consider issues of environmental impact in the full domestic sense, especially including materials management—their selection, use, storage, recycling, inactivation, and ultimate long-term disposition. And it should be possible to anticipate and plan for incidents of human error and accidents that inevitably will occur in the course of all human endeavours.

Military operations associated with military preparedness (Figure 1, B) involve activities related to the training, arming, maintenance, deployment, and inactivation of forces. These activities are conducted largely by military personnel on military bases and on military ships and aircraft, often in remote sites. Such activities involve assembling, storing, testing, and distributing war material; training and maintaining military forces in readiness; deploying forces and war material to potential trouble spots; patrolling, peacekeeping, and other military operations not conducted in anticipation of an imminent exchange of fire in the course of confrontation; and phasing down military preparedness. A new term-of-art, "Military Operations Other Than War" (MOOTW)[2] may be the appropriate designation for these activities.

Military operations in this sense of the term ought also to be sensitive to and compliant with the concept of environmental impact and relevant environmental laws. Unfortunately, there have been instances of environmental damage associated with the operation of military bases. A prominent one involves the Massachusetts Military Reservation (Otis Air Force Base, etc.) on Cape Cod, where groundwater pollution by sewage-derived nutrients and by organic solvents has

been a major issue in recent years.[3] Part of the problem stems from an understandable, though regrettable, ignorance of hydrogeology in the siting of wastewater disposal sites in 1936. As a result, downgradient wells, including a municipal well operated by the Town of Falmouth, were contaminated and had to be closed. Perhaps more significant, this pollution incidence has served to project an aura of "contamination" over the entire area, whose economy depends on tourism, second homes, and retirement homes. The problem began decades ago, before environmental laws were in place; the same problem, mostly on a smaller scale, is widespread around the world. The groundwater plume in question is currently the focus of a Superfund clean-up effort. Equally or more important is the need to address the fundamental issue of disposal of waste materials, to avoid propagating this problem into the future.

The second problem at the Massachusetts Military Reservation involving contamination of groundwater appears to stem from a failure to establish a sound operational, base-wide procedure for use and disposal of organic solvent wastes. It appears that for several years individual managers used personal discretion in the disposal of these materials, which included dumping them into *ad hoc* landfills on the base. It is important for military bases (as well as civilian operations) to plan in an environmentally sound manner and to account quantitatively for the entire cycle of hazardous materials use, from their acquisition through their disposal. This is an achievable goal throughout the course of military preparedness activities.

Armed Conflict

In my scheme (Figure 1), armed conflict introduces the elements of significant and imminent personal danger or hostile destruction of warmaking assets into the conduct of military activities. A spectrum of intensity of conflict leading to possible environmental consequences can be defined extending from limited armed conflict to strategic-scale conflict (or full-scale nuclear confrontation). For the ultimate circumstances of global-scale, total war, including massive deployment of nuclear weapons, an environmental cataclysm could be expected. In a conflict of this scale, where the survival of nations and of mankind itself could be at stake, a discussion of environmental impact almost becomes meaningless. Recognition of the likely disaster of nuclear confrontation presumably motivated the nuclear arms limitation initiatives of the 1980's. Based on the behavior of the superpowers over the past several years, it appears that rational minds have concluded that strategic-scale conflict, with environmental and human consequences spelled out by the "nuclear winter" scenario, is unacceptable—it is not an option. For perspective, nevertheless, it should be mentioned that even the nightmare of the nuclear winter scenario has natural disaster analogs, such as collision of the planet with

comets, asteroids, or other large celestial bodies, which would produce their own kind of "winter."

Even under conditions involving limited armed conflict (Figure 1, C), it may not be possible to conduct military activities in a way that takes environmental impact fully into account. Most military leaders would probably say they would always put the lives and safety of their troops before environmental considerations. In armed conflict, it is likely that numerous commanding officers would need to make individual, and perhaps spontaneous, assessments of when the lives or safety of their forces are in jeopardy, and of the environmental assets at risk. The need to make such judgments during military operations, though complicated by greater urgency and stress, nonetheless represents only a special case of the larger societal need to balance environmental protection against the perceived dangers and benefits of not protecting the environment. This involves a subjective (and sometimes unconscious) assessment that is worth considering in a broader context.

Bias in the Perception of Environmental Impact

There is a tendency to ignore the environmental impact of human activities that are widely considered "good" or "necessary" for society, and a tendency to over-react to activities that are seen to disproportionally benefit a narrow, identifiable, interest group.[4] Two examples—farming and road construction—serve to illustrate the inconsistency in the societal perception of environmental impact.

Farming activities to sustain the world's human population involve control of natural plant and animal communities on a global scale. In the United States 1.5 million square miles (39% of the nation's area) are devoted to farms (Table 1). In about 680,000 square miles used for plant crops, the naturally occurring first trophic level (primary producers; *i.e.*, organisms capable of photosynthesis) has been destroyed, and one of a small number of crop plant species substituted in its place—corn, wheat, cotton, etc. This process involves massive destruction of natural systems, although it is not necessarily irreversible. U.S. croplands are irrigated (77,000 square miles), fertilized with chemicals, poisoned with herbicides and other pesticides, and mechanically plowed, all of which go far beyond comparable natural processes acting on the land.

At the second trophic level ("herbivores"), introduced species such as cattle, pigs, and sheep number about 165 million on U.S. farms; and chickens outnumber people by more than 50 million. These animal species are often raised at densities far exceeding the natural capacity to sustain them. Biological diversity is generally ignored in this context, although loss of topsoil and contamination of natural surface-and groundwater are openly discussed as problems. These are problems that are relevant mostly to the continued human practice of agriculture. In any case, the concern over environmental impact is in no way proportional to the scale

Table 1. Selected U.S. Agriculture Statistics—1992

Land Use	
Use Crop	Area (mi^2)
Land in farms	1,500,000
Corn	108,300
Wheat	93,300
Cotton	17,127
Soybeans	88,000
Hay	88,000
Vegetables	5,900
Orchards	7,500
Cropland	690,000
Irrigated land	77,000
Livestock	
Category	Population
Cattle	96,000,000
Hogs/pigs	58,000,000
Sheep	11,000,000
Chickens	351,000,000

Source: U.S. DEPT. OF AGRICULTURE, 1992 CENSUS OF AGRICULTURE, Volume 1 Geographic Area Series.

of the matter, presumably because we all need farms. (Ironically, when crops are burned, such as during warfare, the environmental impact could be seen as positive if the effect is to return the land to natural systems.) Overall, the impact on the natural biological system is devastating—it is intended to be—but the outcome is the greatest agricultural productivity on Earth.

Another widespread activity essential for our quality of life is road construction, which, like farming, does not occasion the environmental scrutiny and outcry that it might if it were considered on a purely objective basis. In the United States, there are about 1.4 million miles of paved roads. These roads entirely obliterate the natural plant and animal communities in an area of about 14,000 square miles. Most of this road surface is paved with a hydrocarbon material known as asphalt. The amount of asphalt used to pave the nation's roads is about 0.66 cubic miles, or about 71,000 times the volume of hydrocarbons spilled during the 1989 tanker accident in Prince William Sound. It is believed that asphalt, a bituminous residue of petroleum, has a low chemical toxicity; but given the volume of material involved, the lack of fanfare over its widespread, intentional use is noteworthy—particularly in view of the public reaction to U.S. tanker spills.

The Scale of Natural Disasters

This discussion of natural disasters includes only those for which human fatalities are incidental—not, for example, natural diseases that specifically attack the human organism. Most natural disasters result from geologic hazards,[5] such as earthquakes, volcanoes, landslides, and floods. Such natural events can result in very large numbers of human casualties. For example, according to the American Institute of Professional Geologists,[6] human death resulting from the Tangshan (China) earthquake in 1976, estimated at 242,000, was about as costly in human lives as total U.S. battle deaths during World War II. Deaths from a single volcanic eruption in Colombia in 1985 amounted to about the same number as the taking of lives by murder in the United States in 1990—about 20,000. Floods of the Yellow River in 1887 and the Yangtze River in 1931 resulted in estimated deaths of up to 6,000,000 and 3,700,000, respectively, among peoples residing on the flood plains of those Chinese rivers.

Data on the occurrence of natural events resulting in loss of human life are no doubt incomplete. Famighetti[7] provides one window into the frequency of natural disasters, as summarized in Table 2. According to this source, in recorded history (viz., since 526 A.D.), 17 natural geological events (mostly earthquakes and floods or tsunamis) have each resulted in over 100,000 deaths. At least an additional 52 events caused over 10,000 human deaths, and about 75 more resulted in an excess of 1,000 deaths, earthquakes being the most common cause of disasters in this category. Overall, according to this source, 330 spectacular natural events have caused over 12 million human fatalities since 526 A.D.

Table 2. Selected Natural Disasters Involving Loss of Human Life and Destruction of Social Infrastructure

Type of Natural Events	Number Reported	Total Deaths	Number of Events with Deaths			
			>100,000	>10,000	>1,000	>100
U.S. tornadoes (since 1925)	55	4,900	-	-	-	14
Volcanoes (since A.D. 79)	18	181,500	-	8	8	-
Hurricanes, typhoons (since 1888)	80	623,000	2	9	12	37
Floods, tsunamis (since 1228)	79	5,407,600	6	2	21	34
Earthquakes (since 526)	98	6,341,500	9	33	34	14
Total	330	12,548,500 [8]	17	52	75	99

Source: Summarized from FAMIGHETTI, THE WORLD ALMANAC AND BOOK OF FACTS 568-569 (1995)

The above discussion applies to geological hazards resulting from "process." The American Institute of Professional Geologists (AIPG)[9] also includes as geological hazards those resulting from natural "materials." Included in this category are toxic and radioactive materials (solids and gasses) such as asbestos and radon, as well as swelling soils, reactive aggregates, and acid drainage. These hazards are generally less spectacular and their impact distributed over longer time, but associated human deaths and economic costs can be high. For some of these hazardous materials, particularly asbestos and radon, widespread misconceptions abound. AIPG has observed that:

> "While some segments of the populace suffer needless fear and unwarranted financial loss, others are oblivious to real dangers. Massive regulatory actions that are not based upon solid science may be some of the most expensive blunders of this century."[10]

A synopsis of economic costs of geologic hazards in the United States (Table 3) suggests a figure in the tens of billions of dollars annually. These estimates probably represent a significant fraction of worldwide costs.

Table 4 provides a sense of the relative destructiveness of earthquakes as compared with explosives. The comparison suffers from at least two deficiencies: the energy density of explosives is generally greater than for earthquakes, making

Table 3. Economic Costs of Geologic Hazards in the United States[11]

Geologic Hazard	Cost (1990 dollars)
Hazards from materials	
Swelling soils	$6 to 11 billion annually.
Reactive aggregates	No estimate
Acid drainage	$365 million annually to control; $13 to 54 billion cumulative to repair.
Asbestos	$12 to 75 billion cumulative for remediation of rental and commercial buildings; total well above $100 billion including litigation and enforcement.
Radon	$100 billion ultimately to bring levels to EPA recommended levels (estimate based on 1/3 of American homes at $2,500 each, plus cost for energy and public buildings.)
Hazards from process	
Earthquakes	$230 million annually in decade prior to 1989; over $6 billion in 19889.
Volcanoes	$4 billion in 1980; several million annually in aircraft damage.
Landslides/avalanches	$0.5 million to $2 billion annually.
Subsidence/permafrost	At least $125 million annually for human-caused subsidence.
Floods	$3 to 4 billion annually.
Storm suge/coastal hazards	$700 million annually in coastal erosion; over $40 billion in hurricanes and storm surge from 1989-1993.
Source: American Institute of Professional Geologists.	

Table 4. Energy Equivalents of Earthquakes and Explosives

Richter Magnitude	TNT Energy Equivalent	Observed Earthquake Effects	Earthquake Examples	Human Fatalities
5-6	< 6.3 kt	damage to masonry; difficult to stand	Boston, MA 1755 Whittier, CA 1987 Sierra Madre, CA 1991	Usually few
6-7	< 100 kt	panic; walls fall	Armenia 1988	25,000
7-8	< 6.2 Mt	wholesale destruction	Italy 1908 Italy 1915 China 1920 Iran 1978	58,000 32,000 200,000 25,000
8-9	< 200 Mt	total damage; waves seen on ground surface	Japan 1923 China 1927 China 1976 Mexico 1985	103,000 200,000 242,000 9,500
Source: American Institute of Professional Geologists[12]				

for greater destructiveness near the detonation site; and the chain of events actually responsible for human fatalities—*e.g.*, fires, building collapse, flooding, or landslides—are different for the two events. Nevertheless, the Table makes the point that the energy associated with large earthquakes is roughly comparable to that of the largest nuclear weapons.

The 1945-vintage fission bomb had an energy equivalent of about a Richter 6 earthquake. The "Ivy King" fission test weapon of the 1950s was energetically equivalent to a Richter 6.5 earthquake (viz., about 500 kt). The largest nuclear device ever tested was a Soviet fission-fusion device of an estimated 50 Mt yield, which in earthquake terms is about Richter 8.5. The largest nuclear weapon designed (but not tested), also by the Soviets, was a fission-fusion-fission device that may have had a yield of 150 Mt—still within the energy equivalency of a Richter 8-9 earthquake.

Table 4 suffers from the further inadequacy that maximum fatalities resulting from the detonation of a large weapon could easily involve many millions of people if causing human fatality were the objective in target selection.

International recognition of the scale of natural disasters and related human suffering led to the formation of a special United Nations program addressing this topic. The International Decade for Natural Disaster Relief convened its first World Conference on Natural Disaster Reduction at Yokohama, Japan, from May 23-27, 1994.

Natural Disasters in Earth's History

The recording of severe natural events not involving human death or suffering has probably been much less complete; and, of course, for the period before

humans occupied the Earth (which comprises all but a few million years of the Earth's 5 billion year history), only indirect records exist. For the historical geologist, interpretation of these records is of major interest: conspicuous discontinuities in the geological record provide a basis for organizing and dating the history of the Earth. These discontinuities for the most part mark severe natural events or changes that, had humans been present, could likely have resulted in death, suffering, and property loss. In the words of Georges Cuvier, the great French geologist of the 19th Century, "Life on Earth has been frequently interrupted by frightful events."[13]

The following distinctions, drawn by the historical geologist Richard H. Benson,[14] add a useful perspective to this discussion of environmental impact:

> Crisis—an event that occurs in the history of a system, when stress is sufficient to cause the imminent alteration of the system's principal structures, but, through absorption of this stress into its subsystems, the system survives. Natural crises occur often.
>
> Catastrophe—an event that occurs in the history of a system, when stress is sufficient to cause the imminent alteration of the system's principal structures, and the subsystems fail to absorb all of the stress but survive, although the system fails. In such cases, a new and modified system is then formed to take the place of the failed system. Natural catastrophes occur less often.
>
> Cataclysm—an event that occurs in the history of a system, when stress is sufficient to cause the imminent alteration of the system's principal structures, and both the system and its subsystems fail. Cataclysms rarely occur on a grand scale.

In these definitions a system can be a biological, social, or ecosystem, or it can be any organization of interacting elements, including elements that are themselves smaller systems.

Mass Mortalities in the Sea

Another view of natural disasters is provided by Brongersma-Sanders in her paper on mass mortalities in the sea attributable to natural causes. Any of these natural events (summarized in Table 5) could provoke a major outcry if identified instead as an impact of human activities.

Synopsis and Conclusions

This commentary on the environmental threat of military operations is intended to supplement a legal discussion of that topic. It suggests that for a large portion of military operations, such as those involving military preparedness, the concept of environmental protection is reasonably applicable. In the case of limited armed conflict, environmental considerations are more difficult to incorporate; and for

Table 5. Causes of Recent Mass Mortality of Marine Life

Source of Mortality	Comment/Example
Vulcanism	Mortality of, *e.g.*, fish from: burial/suffocation by ash (Mt. Katmai, Alaska, 1912; Krakatoa, 1883) and lava (Mauna Loa, 1859, 1919, 1950); shock of eruption; poisonous gases.
Tectonic earth- and seaquake	Fish kill from shock of quake (Alaska, 1899; Massachusetts, 1755; Valparaiso, 1922); uplift of sea floor exposing invertebrates (Valparaiso, 1822, 1906).
Change in salinity	Fish mortality from increased salinity (Laguna Madre, about every 10 years); freshwater fishes swept into hypersaline sea (Dead Sea, Israel, 1891, 1938).
Temperature change	Kills of marine life (fish, crustaceans) from cold winters (Baltic Sea, 1929; North Sea, 1929, 1946; Bermuda, 1901; New England continental shelf [near Gulf Stream] 1881; Greenland, 1899.
Noxious waterblooms	Red tide bloom production of toxins killing fish, shellfish, and sea birds (British Columbia, 1936, 1951; Gulf of California, 1937; Peru, recurrent; Chile, 1895, 1916, 1932, 1950).
Lack of oxygen/presence of H_2O	Sea of Azov, Norwegian fjords.
Fatal spawning runs	Iceland, annual kill of capelin.
Stranding	Alaska sea herring stranding on Prince of Wales Island (*e.g.*, 1914).
Severe storms	Storm wave kill of 6,000-9,000 ducks and geese (California, 1952); fishkill on Scilly Islands, 1953; Black Sea mass mortality of plants, mollusks, crustaceans in 1935.
Upwelling	Fish mortality (mesopelagic species) in California (1952) following intense upwelling event.
Unknown	Enormous quantities of dead fishes sited in coastal locations and in the open sea for which no explanation is at hand.
Source: Brongersma-Sanders, *Mass Mortality at Sea*.[15]	

strategic-scale conflict, involving nuclear exchange, environmental considerations are most meaningful, perhaps, on a scale appropriate to historical geology.

This commentary shows that the scale of human suffering, property destruction, and economic loss associated with natural disasters is large, and in some ways comparable to the scale of limited armed conflict. Bias inherent to our society tends to downplay the significance of impacts of activities we need, such as farming and road building, and ignores major naturally occurring disasters while over-reacting to those that can be attributed to certain human activities, such as industrial or military activities. These generalizations have an important practical bearing on such concepts as "environmental threat" and "crimes against the environment," suggesting that laws may need to address intent rather than environmental impact.

Notes

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1. CHANDLER & READ, INTRODUCTION TO PARASITOLOGY 1 (1962).

2. The exact definition of MOOTW is evolving. Some proposed uses of the term include instances involving armed conflict.

3. LeBlanc, *Sewage Plume in a Sand and Gravel Aquifer, Cape Cod, Massachusetts,* U.S. Geological Survey Water-Supply Paper 218; Garabedian and LeBlanc, *Overview of Contaminant Hydrology, Geochemistry and Microbiology at the Cape Cod Toxic Waste Research Site,* U.S. Survey Water-Resources Investigations Report 88-4220.

4. Bobertz, *Transferring the Blame,* 13 Envt'l F. 22 (1996).

5. American Institute of Professional Geologists [hereinafter AIPG], THE CITIZEN'S GUIDE TO GEOLOGIC HAZARDS 3 (1993).

6. *Id.* at 2.

7. FAMIGHETTI, THE WORLD ALMANAC AND BOOK OF FACTS 568-572 (1995).

8. AIPG *supra* n. 5 at 2.

9. This includes fatalities of 900,000 for the 1887 Chinese flood; independent estimates place fatalities as high as 6,000,000 for that disaster, possibly raising this total to 17,648,500.

10. AIPG *supra* n. 5 at 2.

11. Modified from AIPG *supra* n. 5 at 3. See original reference for data sources.

12. AIPG *supra*, n. 5 at 39 and 41.

13. As quoted in AGER, THE NEW CATASTROPHISM: THE IMPORTANCE OF THE RARE EVENT IN GEOLOGICAL HISTORY 4 (1993).

14. Benson, *Perfection, Continuity, and Common Sense in Historical Geology, in* CATASTROPHES AND EARTH HISTORY (Berggren & van Couvering eds. 1984).

15. Brongersma-Sanders, *Mass Mortality at Sea, in* TREATISE ON MARINE ECOLOGY AND PALEOECOLOGY, ECOLOGY 941-1010 (Hedgepath ed. 1957).

Chapter XII

Panel Discussion: The Environmental Threat of Military Operations

Vice Admiral James H. Doyle, Jr., U.S. Navy (Ret.): Good afternoon. I am Jim Doyle. I have the unenviable task of trying to come to grips with the facts of the situation. First of all, let me say what a great pleasure it is to be back up here at the Naval War College at one of Jack's forays and to see many old friends and to meet some new ones. In addressing this balancing role, that is, trying to figure out the risks versus the benefits of protecting the environment during combat, it is always helpful to know what the facts are in order not only to develop realistic international law related to armed conflict, but also to provide the basis for sound policy choices. Our panel will, hopefully, provide some insights as a basis for the discussions that will follow in subsequent panels. To the best of our knowledge, what are the actual effects on the environment of various land, sea, and air combat operations? Or, even before combat operations, in training and readiness, and all the other operations we are calling "peaceful deployments", to actually deploying armed forces in combat, what are the impacts of our operations on the environment? Are the effects upon the environment of those actions negligible? Are they short-term or are they long-term? If they are short-term or long-term, how would you characterize the significance of the effect upon the environment? Do the effects trigger collateral effects and, in turn, are they short-term or long-term? How significant might such collateral effects be? What is the relationship of the various combat operations to the accomplishment of the mission, and very importantly, as we heard just a moment ago, in what context are they being carried out? Now these are all very tough questions for our panel but we have a very distinguished group of panelists that will try to come to grips with this enquiry. As Admiral Stark and others have pointed out, the business of operating at the limited end of the spectrum of conflict poses a tough challenge in considering the possible environmental impacts of combat operations. Not only are you trying to limit the war and, hopefully, bring it to a diplomatic conclusion, you are also trying to limit any damage to the environment because you are probably going to have to go in there sooner or later and redress any environmental damage you may have caused. Well, we are going to have to try to come to grips with that.

Our first speaker will be Colonel Frank R. Finch, Director of Environmental Programs in the Army. His mission is to ensure that the Army complies with all applicable environmental laws and regulations. Colonel Finch has had various command and staff assignments both within the United States and overseas,

including Deputy Chief of Staff for Engineering, U.S. Army Pacific, and the Commander of the Baltimore District of the Army Corps of Engineers. Frank would you lead off?

Colonel Frank R. Finch, U.S. Army: Good afternoon. My task, as the Admiral indicated, is to look at the environmental threat of Army operations. But, before I begin summarizing my paper, I would like to just add a follow-on note to our last panel. There was some discussion as to the extent military people are trained to be conscious of environmental considerations as they prepare to go into combat or to go to war. I can respond to that question from personal experience. One of the things that we do out of my office is to run the Army's environmental hot line. This is, in reality, an assistance line, a one-stop 800 number, if you will, for anyone to call in and ask for help, whether it be with regulatory interpretations, or more complicated scientific questions. About a year ago, when the 10th Mountain Division was preparing to go in to what at that time looked like a hostile landing in Haiti, we handled dozens of phone calls from 10th Mountain planners and operators that were in their war planning process. They were developing plans both for deployment and for combat operations, and they were very concerned about doing all the proper things environmentally. We had quite a time answering all the questions they raised in making sure that they were approaching their duties in a diligent manner. I think that is just one indicator that our culture has changed considerably. For those of you who are not in the military and do not see it on a day-to-day basis, I think you would be surprised, pleasantly surprised, at the extent to which we have incorporated environmental planning into our day-to-day business.

With that as a preface, let me try to summarize the key points of my paper. It's a lengthy paper and I will just address the highlights so that we will have plenty of time for discussion. First of all, I think we all recognize that environmental threats have been an inherent part of warfare as long as mankind has had conflict. By definition, in warfare both sides are committed to a cause that they are prepared to die for and are prepared to kill for. Very often, environmental considerations are not an important factor in the decision-making process. What I am going to try to do is to show you how we have analyzed the threat to the environment posed by combat operations in terms of scope and scale. I think that there has been a lot of discussion already today that that is an important factor in the planning process. It is not a black, white, or binary discussion here that is necessary, but a whole spectrum of conflict and a whole spectrum of threats. In my paper, I go back to 400 B.C. Greece, where one of the first cases of a sacred temple being despoiled by the Athenians is recorded. This was done as a deliberate action and was designed basically just to antagonize the enemy. In the second century B.C., the Romans spread salt on the fields of Carthage to destroy their crops and to poison their soil.

Sherman's march to the sea during the Civil War destroyed Confederate agriculture and industrial resources. In World War II there were many such occurrences. For example, the Russians used a scorched earth policy on their own territory to deny Germany the resources to continue its offensive. With respect to Vietnam, we have already discussed herbicides and their uses on vegetation in order to deny the enemy concealment. The long-term effects of herbicide use in Vietnam are still unclear. In the 1980s, the Soviets destroyed crops in the fields of Afghanistan to deny food to the rebels. During Operation Desert Storm, the Iraqis looted agriculture resources, destroyed irrigation capabilities, and destroyed oil processing facilities. Again, some of these actions are going to take us years to remedy. In my paper, I suggest a model to analyze hazards and note that the largest body of scientific analyses in this area comes from risk assessment of hazardous waste disposal operations. And here the general model to determine the hazard of any contemplated action is to look at a source-pathway-receptor process. A simple military example would be chemical nerve agents. Chemical nerve agents are the most toxic chemicals on earth. A person even briefly exposed to a small quantity of these chemicals will die, absent appropriate medical attention. Most such agents work either by being breathed or through absorption in the skin. Chemical nerve agents are delivered usually by air transport through spraying or through explosive munitions. Using the model that I described, the chemical agent is the source, air is the pathway, and the soldier is the receptor; you need all three to have a complete threat.

My paper then addresses the multiple sources of military threats to the natural environment. They could involve any physical, chemical, or biological agent that is capable of producing a specific harm or damage. The paper describes many of the sources of such threats. Let me read a few of them. Explosives, projectiles, chemical weapons, biological agents, and nuclear weapons are obvious ones. But, there is a much longer and less obvious list of hazardous sources, primarily chemicals, that are also essential in combat, including petroleum products, chemicals for biological and chemical decontamination, infectious waste from medical facilities, spent batteries, pesticides, and so forth. The list is almost endless. Contaminant sources may also be an indirect result of military operations, such as waste water treatment facilities that discharge untreated sewage following damage by an artillery shell.

There are many ways we can categorize threat sources and effects and so forth; I try to offer a few in my paper. I think it is important to distinguish deliberate effects from accidental effects. Each hazard source must also be analyzed to determine its hazard potential. Again, borrowing from the hazardous waste management process, we can classify these hazards as corrosive, ignitable, reactive, toxic, and infectious. We can also look at time frames, "acute" means those that have an immediate impact on health, and "chronic" means those that require some

period of time to produce an adverse effect. Nations see and feel the immediate effects of acute warfare and its hazards but they feel and they worry about chronic effects such as we saw with Agent Orange, nuclear exposure, or the unknown effects associated with the so-called "Gulf Syndrome", for example. Effects on the ecology are equally uncertain.

My paper also briefly discusses pathways, and I think one important point to look at is when you do not have all three elements of the source-pathway-receptor model. Chemical warfare is possible and indeed we prepared for it in the Gulf War because we had protective gear. That protective gear was intended to interrupt the pathway. You still had a source; you still had a receptor, but you didn't have a pathway if you had protective chemical gear that is working properly. Likewise, if you have a non-mobile agent located in an area without receptors, you do not have a risk because it too lacks a pathway.

I spent a great deal of time in my paper talking about "uncertainty" and this probably deserves its own conference. But environmental persistence is a major factor. Chemical, biological, and radiological agents may transform when they are released into the environment. These processes can be chemical reactions, physical degradation, or biologically driven reactions. The products of these reactions may be more or less hazardous than the original agent. There are numerous mechanisms that influence the decay or change of an agent in the environment. One of these is hydrolysis, which is a reaction of water that can yield a different chemical. Another is photolysis reactions which are powered by sunlight in air, transforming vapors and aerosols. Biological agents will either grow, die, or mutate, depending upon environmental conditions they encounter. Chemicals in the water and in the soil are susceptible under the proper conditions to bio-degradation or bio-accumulation. As a common example, bio-accumulation of PCBs in fish living in contaminated streams represent a hazard to the organisms that eat the fish. To continue on with elements of uncertainty, the amount of contamination that reaches the receptor, and the rate at which it is absorbed, are determined by many factors as is the case of accumulation levels. Physical characteristics of the receptor are also key, such as body weight, lung capacity, skin surface area; and they influence the amount of contamination that actually enters the body. Inhalation rate, water uptake rate, and duration of exposure are three obvious factors that are important.

The graphic that I use in my paper lays out these categories. The left hand side of the graphic lists the pre-combat phase, preparation to go to war, the combat phase, and the post-combat phase. This listing is further broken down to reflect acute and chronic effects. Across the top of the graphic are the Model categories of source, pathway, and receptor that I mentioned, as well as hazard classification. You can use this model to go through the various phases of combat operations and determine whether you are dealing with acute or chronic conditions.

The next point that I want to make is that our weapons production system has produced major contamination problems for this country. I would like to read to you a short passage from the Office of Technology Assessment of the U.S. Congress. That office had this to say about the long-term environmental effects of weapons production:

> Many factors have contributed to the current waste and contamination problems at the weapons sites. The nature of manufacturing processes, which are inherently waste producing, [have a] long history of emphasizing the urgency of weapons production in the interest of national security to the neglect of environmental contamination, a lack of knowledge about or attention to the consequences of environmental contamination, and it is an enterprise that has operated in secrecy for decades without any independent oversight or meaningful public scrutiny.

My paper briefly discusses Agent Orange from the standpoint that its half-life, when measured on a leaf, is two hours. Whereas, its half-life, when measured in soil, is ten years. Because its toxicity is so extreme, half-life becomes a very, very important factor when talking about soil contamination.

The next major point was alluded to this morning—targeting of certain large facilities that support a nation's war-fighting capability can have tremendous short-term effects on the environment and also can have certain long-term effects. My paper uses the example of the RAF bombing of the Mohne Dam in May of 1943. In the initial planning, the Allies focused on Hitler's industrial base and his ability to wage war. When the dam was breached, one thousand houses were destroyed or damaged; 11 factories were destroyed, and 114 damaged; and 25 road bridges were destroyed, and 10 damaged. Various power stations, pumping stations, water and gas facilities were also put out of action. The long-term environmental effects of this action are unknown. Damage to the environment was not analyzed at the time of the bombing and it is difficult to assess it retrospectively. It is unknown what types of factories were destroyed and what hazardous materials entered the Ruhr River. We know some chemicals would hydrolyze, some would settle out, and still others might bio- accumulate in organisms or biologically degrade.

My next major point, also mentioned this morning, is that predictions of the environmental threat of military operations can be exaggerated. We have all talked about the oil spills and the destruction of the oil facilities in Kuwait. Most early coverage of this included some very dire predictions about the magnitude and duration of this effect. Believe me, I am not trying to minimize this problem, but I just want to put it in perspective. The original estimate to stop the oil fires ranged from two to five years. In fact, innovative technology was developed during the recovery operations and reduced this time to less than nine months. Also, the predicted impact of the smoke that suggested large regional and even global

damage was mitigated somewhat by meteorological conditions that fortunately limited some of the severe environmental effects to very localized areas. However, the long-term effects of this, both the oil spills and the oil fires, is still being examined. I think it is important to not draw any premature conclusions.

I wanted to mention a point that I do not believe we have discussed yet. One long-term effect of military operations is that it is difficult to quantify the loss of talented people, historical records, and scientific equipment and capability. They could be used to provide better analysis of environmental problems and better strategies to recover and, indeed, to rebuild the country in question. Targeting of nuclear facilities or chemical facilities is, of course, a special concern. In the Bosnian conflict, we have seen war damage to some fifty factories along the Danube. Hazardous chemicals were involved in production of weapons and explosives there, as well as metal plating and refining of oil. Now these pollutants can be passed along downstream where they can settle in the river bottoms to be a future problem during dredging or whenever the river bottom is disturbed. Back in 1984, we had a well-known industrial incident in Bhopal, India which killed 2300 people and injured 20 to 30 thousand others. This accident was due to a small amount of water being released into a storage tank of methyl isocyanide. Collateral damage from military operations could cause a similar tank to rupture and be exposed to water with equally horrendous results. The Bhopol plant was an insecticide processing factory similar to those in many countries.

U.S. concern for environmental impacts is much greater and more sophisticated than it ever has been. However, potential adversaries may not share our ethical frame work. I think we discussed that at length this morning. The current military trend in armed conflict doctrine, as described, for example, in the Army's Force XXI doctrine, stresses information processing and technological innovations which reduce the size of the force, increase precision and lethality, and increase land area operations. Although the technology within U.S. and NATO forces is advanced, the technology of our enemy may run the spectrum. It is likely that environmental threats and impacts on the land caused by U.S. forces could decrease. However, as was stated earlier, in Operation Desert Storm, although everyone saw on CNN how precise our laser guided weapons could be, 93 percent of the ordinance that was dropped was gravity bombs, of which 70 percent missed their target. So, although we think of the Gulf War as a precision guided weapons war, there was a great deal of conventional ordinance dropped with inevitable collateral damage to the environment.

In the concluding comments of my paper, I make several points to place all of this in context. First, I stress the utility of the use of the model for analysis of the threat. Secondly, I believe the environmental impact of military operations can be exaggerated in the short-term, and I also believe it is very difficult to predict in the long-term. Many people are studying the effects of the Gulf War and it is too

early to say what the long-term damage to the environment is. Commanders should make military operational decisions when fully apprised of the risks and the uncertainties of environmental effects of their plans. There are times when military necessity would dictate that military operations will cause some adverse effect on the environment. But, as has been said earlier, commanders have an obligation to show due regard for the environment and to avoid unnecessary damage. Third, our ability to mitigate the effects of our combat activity has grown immensely. Fourth, our ability to clean up unexploded ordinance, particularly buried land mines, continues to challenge environmental resources and technology. I did not discuss that very much here, but it is a huge problem—detection and removal is a tedious and dangerous process for unexploded ordnance. Finally, as we assess environmental risks, we have to remember that a full range of warfare is possible and that other nations may not share our environmental ethic. The use of terrorist tactics against facilities which specifically target damage to the environment is very possible, and we have seen it in our most recent conflict. Thank you.

Vice Admiral Doyle, Jr.: Thank you very much Frank. Our next speaker is Commander John Quinn, JAGC, USN. John is a graduate of Duke University. He entered the Navy as a Supply Corps officer but soon thereafter saw the light and became a lawyer. He is a graduate of Georgetown Law School and has a Master of Laws in Environmental Law from George Washington University. John is now the Environmental Counsel to the Chief of Naval Operations, Environmental Protection Division, and is representing the Director of that Division, Rear Admiral Schreifer, here today. I might add that he previously served as Environmental Counsel on the Staff of CINCPACFLT. John.

Commander John P. Quinn, JAGC, U.S. Navy: Thank you very much Admiral. I would at the outset like to convey Rear Admiral Schreifer's regrets that he is not able to be with you today. He very much wanted to be here. He is currently the acting Deputy Chief of Naval Operations for Logistics. Dr. Ron DeMarco, representing the Office of Naval Research, and I have prepared a paper which we will be alluding to in our remarks. We will present a three-part discussion of the impact of combat and military operations other than war on the marine environment. Actually, I have the easy part. I get to lead off and do one of those parts and then Dr. DeMarco will take over and do the other two. What we would like to do is pose two questions and then hypothesize an answer. The first question is what should military planners and military commanders know about the marine environment as they prepare to, and actually do execute their missions. That is the part that I will address. The second part, which Dr. DeMarco will take, is the question of what actually do we know, and how extensive is our knowledge about the effect of combat and operations other than war on the marine environment.

He will point out that despite the fact that we do have a great deal of knowledge in this area, we have just scratched the surface, if you will, and there is still a great deal of uncertainty and unreliability, as has been mentioned several times so far today, regarding the anticipated effects versus what actually did occur with the benefit of hindsight. Dr. DeMarco will then offer a model for policy makers evaluating and dealing with this scientific uncertainty.

Moving into the first part, what should military planners know about the effects of their operations on the marine environment? As I look at the statement of purpose for this Symposium, I note that it is mainly internationally focused, and appropriately so. The focus is to examine the existing international legal order to determine if it adequately proscribes environmental damage not justified by military necessity during armed conflict and to determine, basically, if that regime is adequate. The second purpose is to examine the interrelationship of the law of armed conflict and the peacetime environmental regime as well as the adequacy of existing mechanisms to enforce State responsibility, etc. As a person who is trained in and whose experience for the last six years has been primarily in domestic U.S. environmental law, as it affects the Navy, I think we would be remiss if we didn't pause during this Symposium and at least acknowledge the extent of requirements upon military operations that are imposed by the domestic law of the United States, perhaps by the domestic law of other nations, and acknowledge the extent to which those requirements actually travel with military forces in peacetime and to a certain extent in wartime as well.

I will postulate that there is a continuum of action starting from peacetime operations and carrying all the way through military operations other than war and into limited war and total war. This is a continuum of intensity of action, if you will, and I just ask you to reflect on what legal regime controls each stage of that process. At what point does one legal regime end and another pick up? From the standpoint of domestic U.S. law applicable to the operations of the military, and particularly the Navy and the Coast Guard since we are charged with discussing the marine environment here, I would advance two propositions. One is that there are very substantial requirements to collect information about the impacts of war on the marine environment, and to analyze and consider that information in decision-making mechanisms, that are imposed by domestic law.

Secondly, to a great extent, the requirements to acquire information and to consider it, at least from the domestic law standpoint of the United States, do not disappear in time of conflict. They may be modified. In fact they are modified to some extent. But, it is important to acknowledge that they do not entirely disappear, and perhaps to reflect on what the meaning of that may be. I would like to illustrate that by looking at three aspects of U.S. law very briefly and to then compare and contrast their peacetime requirements with what those requirements are in war.

Colonel Finch mentioned environmental planning, the environmental planning done by the Army in preparation to going into a foreign country for purposes of conducting a military operation other than war. We have a very strong environmental planning regime in this country that has been in existence as early as 1970. The National Environmental Policy Act requires federal agencies to document the effects of their actions on the environment, including the marine environment, for any activity that would be considered a major federal action significantly effecting the quality of the human environment. In carrying out those responsibilities, the military services spend a lot of money and time and effort documenting what these impacts might be. This particular requirement travels with the Navy as it leaves port, at least as far out as the territorial limits of the United States, and it is a requirement that we pay a lot of time and attention to in order to stay on the right side of the law.

Beyond our territorial seas, the conduct of the military in this arena is directed by Executive Order 12114, which requires certain examinations of the environmental consequences of our actions on the global commons and even within the territory of foreign countries. There are a number of exemptions and qualifications to those requirements, the ultimate effect being that, for the most part, an operation such as war or an armed conflict other than war would almost certainly not be subject to the environmental studies requirement. But, certain other activities that might be conducted in the marine environment, during peacetime in particular, would be so subject and, in fact, the requirements are adhered to.

Now as far as the National Environmental Policy Act is concerned, how far into the continuum toward war does that extend? There is no national security exemption provided for in that Act. It does not say, "This does not apply during war," as do a few statues, mainly those pertaining to vessel source pollution. There is simply a requirement or proviso in the Act that in an emergency—not war—the agency concerned can consult with the Council on Environmental Quality and they will figure out how to do the right thing. In fact, as our paper points out, that has had to be done on a couple of occasions due to military exigency during Operation Desert Storm pertaining to some operations that had to take place back then.

The environmental planning requirements of the National Environment Policy Act and Executive Order 12114 are significant, substantial information gathering and analyses requirements that the United States military must and does consider. They are, however, requirements that are only procedural in nature. They do not necessarily require that you make the environmentally correct call, simply that you document and that you consider what the effects are, the objective being enlightened decision-making. There are two other U.S. statues, however, that impose not only information requirements but substantive requirements on what

we can do. Those are the Endangered Species Act and the Marine Mammal Protection Act, both of which control U.S. entities on the high seas world-wide with regard to their requirements not to "take" an endangered species or a marine mammal of any description. If your activity, possibly including war, might result in a "take", than the requirement of these two Acts is to get a permit from the appropriate wildlife agency. In the process of getting such a permit, a considerable amount of biological information must be collected, provided and considered, most generally in a public way. Again, these requirements are extra-territorial, that is, they travel with the military when the military does travel. There are some qualifications to these actions under the Endangered Species Act. For example, there is a "relief valve". If an action otherwise must be taken, a committee of Cabinet level officials may grant an exemption from the requirements of the Act, but only after a certain process has taken place, which may make it difficult to take action in a very timely manner during a military exigency. Under the Marine Mammal Protection Act there is also such a "relief valve". These mandates of U.S. domestic law include quite substantial requirements, requirements that do not necessarily terminate, as you might think, the moment that we move into war or operations other than war. Moreover, at least several of them are extra-territorial in terms of their reach.

So what is the bottom line here? There are environmental constraints other than those imposed by international law on what the military is able to do. We need to access our environmental posture with regard to staying within the guidelines, assess the risks of our military operations, and assess the risks of being perceived not to be in compliance with domestic and international environmental standards. As has been said numerous times throughout this Symposium, and from my perspective in the environmental compliance business of the Navy, I can attest that there seems to be a true environmental ethic that has evolved over the last number of years in part driven by requirements such as these. This ethic is in part driven by the fact that the Navy now consists, in significant part, of young men and women that have grown up with Big Bird telling them to recycle, and so forth. These people are now lieutenants, lieutenant commanders, and senior enlisted people. They are truly imbued with an environmental ethic. Consequently, these requirements are viewed as consistent with military operations to the extent that we will take every measure that we possibly can to protect the environment, consistent with the mission. I would like, at this point, to turn the rostrum over to Dr. DeMarco. Having talked about what the commander *should* know, Dr. DeMarco will now tell us what we *do* know.

Vice Admiral Doyle: Thank you John. I am going to have to look into some of those provisions in our domestic law. Our next speaker is Dr. Ron DeMarco. He is one of our very dedicated Senior Executive Service civilians of the Naval

establishment. He is the Director of Environmental Programs of the Office of Naval Research. In this capacity, he directs Navy-relevant research in the areas of chemistry, physics, and interdisciplinary environmental research. His past assignments have included Head of the Advanced Inorganic Materials Section and Head of the Advanced Materials Section. He has written widely, holds three patents, and has given numerous technical reports. Ron.

Dr. Ronald A. DeMarco, Office of Naval Research: Thank you Admiral. It is a pleasure to be here as a scientist among legal and policy people. To borrow from Red Skeleton, my presentation is like a long-tailed cat in a room of rocking chairs. As Commander Quinn and I first started talking about our assignment today we realized very quickly that we were talking past each other; we were not talking the same language and we do not mean the same things by what we say. So what I am going to do is provide a scientific perspective because there is a difference when you talk about the impact of naval operations on the environment from a scientific versus a legal or policy point of view. I define "effect" as the *result* of an action. If we try to put it in military terms, we can look at the "effect" as the tonnage of bombs dropped. But that does not tell us anything about the consequences. The "impact" is that the target is destroyed, the target is missed, or it is partially destroyed and it will be back on-line in one week. The distinction between "effect" and "impact" is fairly important from a scientific standpoint. What we tend to see in the policy area is many people using effect and calling it impact. This will be the context in which I use these terms. When you talk about impact you have to know more than just the effect, you have to know what the capability was before and what the capability is after. There are time considerations to factor in as well. You can have a short-term impact that is very minor but in the long-term can be catastrophic. It is like changing the flow of water in a river. In the short-term, the impact may be minor. But, in the long-term it may create erosion or establish different flow patterns for the river and as a result you may flood some areas and destroy crop growing capabilities. Conversely, something that looks like a short-term catastrophe, and I think oil spills are of that nature, are in the long-term, due to bacteria that grows in oil polluted areas, able to be remediated. In the longer term, maybe ten or fifteen years, the impact may actually be very negligible. It can range from negative to beneficial. From the beneficial side, let us assume there was, for some reason, an excessive number of predators in some given species. So they are working very hard on the food chain below them and the chain can not survive. If by accident you happen to kill off some of the predators, you may actually have put the system in better balance than it was before. Whether an impact is negative or beneficial is often decided from a value judgment perspective, and this is part of the problem with science. Science takes a long time to complete, to verify, and to confirm, and often you do not have a long

time to wait to make decisions so it falls back on a value judgment. Society values life, society values other forms of life. There are differences in cultural values also. During the Gulf War, the Saudis wanted to protect their "RO" units, the reverse-osmosis water purification units, at the expense of other possibilities. So that was a value judgment on their part.

Development of a sound environmental policy should consider the initial condition of the environment, the anticipated effect of the policy on the environment, the impact of that effect and the cost/benefit ratio of that impact. As I mentioned, to assess the impact of an action, you have to know the initial conditions of the environment. You have to know not only what your impact or effect might be, but what does nature itself do? Your impact may be relatively small compared to what nature normally does. What is the effect and what did you do to the environment? That becomes the "numbers" issue. Then comes the assessment of the impact and that is a very hard thing to do. It becomes a cost/benefit analysis and cost does not have to be measured in dollars. Cost can involve a variety of things. How do you assess the cost/benefit of the impact a policy decision may have? Assume you have a policy for tuna fishing, for example. Because you change the net size, fishermen may say they are going to catch fewer fish, therefore, there is an economic impact on them. You can calculate the number of dollars or training hours affected by a policy decision. You can say what those numbers are going to be, but what is the impact of those numbers on reduced training capabilities? In the military what you want to do is train as you fight, you do not want to train at half speed and then find yourself in a situation where you have to be at full speed and not be aware of what is happening and how things can change. So you can lose the edge there and you cannot put a dollar value on that. But there should be some type of an assessment of what the policy actually does, not only to the environment, but, from the military sense, to our military capability.

I am going to provide three examples and go through them to try and give you an idea of actual situations. The Russians, the former-Soviet Union, released papers saying they sent radio-nuclides into some of their rivers; that they took some of their reactors from some of their ships and threw them into the Barents Sea. They say the reactors are down there and here is the amount of nuclear material that was in them and here is when it happened. What do you do? This stuff is leaking and we are now talking about it's "migration", which could get it into the rich fishing areas off the coast of Scandinavian countries. It could move considerable distances. What policy do you adopt? What action do you take? One thing that was done at the U.S. Naval Research Laboratory, using their computing capabilities, was to model what was going to happen to those materials. They calculated the high level waste that was dumped with those reactors, looked at the rivers that emptied into the Barents Sea, and then looked at the radioactive waste

that was dumped into the Irish Sea from the Sellafield nuclear power plant in the U.K.

What they found was that the river releases from the former-Soviet Union, and the Sellafield releases from the U.K., basically accounted for all the nuclear activity that was in the water. If they were to calculate in the high level nuclear waste that was in the Soviet reactors, they should have had real numbers ten times higher than what they were seeing. So we were in a good-news/bad-news situation. You are not leaking the high level radiation material. That is the good news. The other part of the good news is that you are in a position to get monitoring out there and to be able to really watch what is happening. The bad news is that the high level nuclear waste is not leaking yet. What is the environmental impact of all this? We do not know. Are the nuclides that are present in the water up there in such dilute concentration that their chances of getting into the food chain are extremely small, negligible, zero? Or, are they there at a level that they might get into the food chain? That consequence has not been looked at but at least we know the effect at this point.

The second situation I will address is the Gulf War oil spill. Six hundred plus million barrels of crude oil were dumped; six to eleven million, depending on your numbers, were released into the marine environment itself. The initial estimates were grim. It was believed that the oil slick would sink as the 1983 spill did, and if it did, it would cause catastrophic damage to sub-tidal organisms and there would be gross contamination of sub-tidal biological organisms. In actuality, that did not happen. There were physical, chemical, and biological reasons why it did not happen. The wind kept all the oil very close to the shores of Kuwait and Saudi Arabia. Many of the organisms on the shoreline were very severely impacted, including aquatic birds and animals that bore into the ground, like frogs. Oil went into the holes and it sat there. It does not weather there because there is no weathering down in the caverns. So there were some very severe impacts along the shore, but not what was anticipated. We also witnessed extensive oil recovery operations. Even before the war was over, people were already trying to recover the oil. The numbers vary, but somewhere between 15 and 35 percent of the oil spill was actually scooped up and taken away; it was recovered. A large amount of the oil evaporated. It is very hot in the Gulf and you get more evaporation there than you would normally. The discharges that regularly occur in the Gulf due to tanker traffic did not happen nearly as much because there was not much tanker traffic. Nobody wanted to run into a mine. So the tankers tended to remain in port and that lessened the impact on the environment. The intense solar radiation and enhanced chemical reaction, as mentioned by Colonel Finch earlier, helped mitigate some of the problem. But, as was pointed out by the Colonel, we do not know the long-term effects. One of the comments made by the National Oceans and Atmospheric Administration (NOAA) was that the environment has changed

and we do not know if it will ever come back to the way it was—it may now be different. What they found, however, were unspoiled areas that continue to prosper. If you can clean up what is there on the shore, you may be all right, in terms of ultimate recovery. How long that will take we just do not know. We are probably looking at twenty years before we can get to that stage.

My third situational example is one that is a little closer to the Navy's heart. Acoustic thermometry of ocean climate (ATOC). ATOC looks to see if the "greenhouse effect" and global warming is actually occurring. The way this is done is you send impulses of sound into the deep basins of the oceans over thousand of miles and you measure the speed of the sound through the water. The speed of sound is very sensitive to the temperature of the water, so if there has been a change in the deep basin water temperature, there is a good possibility of global warming having occurred.

The problem is you have to use low frequency sound and there are environmental groups that have argued that if you use low frequency sound at these levels you are going to deafen marine mammals; you are going to cause physiological trauma to the marine mammal population; and all sort of negative things are going to happen. In actuality, the sound that would have been used would have been less than that emitted by a tanker. The number I have seen is one tenth the value of a large tanker. We send tankers back and forth across the oceans all the time. We have not seen any deafening of any marine mammals that we know of. So what has happened is that the experiment has been stopped. California has now issued a source permit for the ATOC experiment, so they can use California. Hawaii has not issued a source permit, so the experiment is still on hold. The National Research Council did a report in 1994, so we are not looking at dated information, and all the information and papers they were able to put together concluded that low frequency sound does not appear to be a problem for marine mammals. Although this report exists, the National Marine Fisheries Service has a 150 decibel (dB) source level proposed ruling that is being looked at right now. Large tankers exceed 150 dBs. The navigational equipment on most ships exceeds that. Many practical things exceed that number already. We have been able to do this without problems in the past; 150 dBs is not a scientifically based number. No information they have constitutes a basis for any regulatory action, and yet there it is. This is of interest to the Navy because we use low frequency sound, sonar experimentation and a variety of other things. A ship may have to get permits in order to exceed the 150 dB limit if that ruling goes through.

Now, what do we know about marine mammal hearing? We will spend some time on this as this is important to the Navy. Most of the hearing tests that have been done with a variety of species of seals are generally stopped at a kHz. We have to go lower than one kHz. We have determined that when you get down less than 1000 Hz you have to increase the volume to at least 125 or 135 dB before the animal

is able to hear it. Now hearing something and being harmed by that level of sound are two different things. Suppose my kids have their music on too loud. I can put a filter on it by shutting the door; I can turn it down; or, I can go away. But, if I was a marine mammal, I would have been "taken" because I would have been affected by that music. We are trying to understand the physiology and the hearing of marine mammals such as the Bottle-nosed porpoise. We have conducted hearing "tests" on individual porpoises over a period of fifteen years and have learned that they experience hearing loss as they age just as do humans. As an example, one porpoise could hear sound at 50 Hz at 50 dBs. Fifteen years later, that same animal had about 50 percent hearing at probably 60 or 70 Hz, but it required a power source of about 140 dBs for it to do so. What we are finding is that among marine mammals, hearing is naturally lost just like our hearing is naturally lost. That being true, how can we now assess what the impact of acoustics is on any particular marine mammal if we do not know the age of the particular animal and what his previous hearing was?

We are also assessing the effect of low frequency sound on marine mammals. We have patterns of marine mammals diving, climbing, diving and climbing in the ocean. As the animal dives its respiratory rate and heart beat becomes very slow, and as it comes back up they increase again. If you introduced a sound at that point and saw a change in the animal's heart beat or respiratory rate, you might say it has been affected. We have done the same thing by determining whether an inputted low frequency sound affects the sounds Finback whales use to communicate with each other. Finback whales speak in dialect. Those in waters off California, the "southerners", have a bit more of a drawl than do Finbacks off of Greenland and northern Europe. If you did not know they spoke in dialect, and were used to hearing a drawl and suddenly, in a different area, you do not hear that drawl, you might decide that Finbacks have been impacted. You might decide there is a danger, that something is wrong. But, nothing is wrong. It is just that Finback whales speak differently. The point is that you cannot make valid environmental policy decisions without first understanding the environment or the species that you are concerned about.

Let me return again to the process—the components of the environmental policy process. We began with mechanisms that produce environmental "effects". These may be military operations, nonmilitary operations and activities, or natural events that occur. Each of these generate some sort of effect. That effect can impact the security of the nation which then would trigger activity in the political system and could have political consequences. The effect could impact the physical environment and have consequences for ecological systems. Or, the effect could have its impact in the economic environment with consequences for the social system of the nation. Therefore, an impact assessment should be made that involves all of these parts of the puzzle. What we are seeking is a proper balance.

There has to be a balance. What happens is that environmental policy decisions may not be balanced. An example of that is the way the Navy shock tests its ships. You want to ensure that the integrity of the ship and its systems are properly protected from shock transmitted through the water column. But you are also concerned for the safety of marine mammals if they get too close to the test site. *Laissez faire*—shock test any place you want, or ultra restrictions—you cannot shock test at all. What the Navy does is take a balanced approach. We put spotters in planes and on surface craft. We have floating and fixed listening devices to listen for any marine mammals in a wide radius around the test site. If none are located, we do the test. If marine mammals are detected, the test will be delayed until they leave the area. So that is an illustration of the balancing that can occur to meet everyone's objectives. But, you really have to watch to ensure that the proper balance is maintained. If it tilts too much one way or the other a compensating change in the policy and regulations may be required to bring it back in line again. If policy-makers want to look at new policy, they really ought to do so in terms of the entire assessment and the ability to balance the benefits and the costs with the policy that is generated. Thank you.

Vice Admiral Doyle, Jr.: Thank you Ron. Our next speaker is Mr. William Arkin. Bill is a columnist, an author, and a consultant specializing in modern warfare, nuclear weapons, arms control, and the environment. You name it and he has written about it. Bill was Director of Military Research for Greenpeace International and co-author of a book on modern warfare and the environment in the Gulf War. He presently has a MacArthur Foundation Grant for looking at the destruction of electrical generating facilities in warfare. He is also working with Greenpeace International on the general subject of denuclearization of the world's oceans. Bill.

Mr. William M. Arkin: First, I should say as the initial person speaking at this conference who does not work for the U.S. Government that what I am about to say is very critical of the US Government. Because of that, I should declare at the outset that I believe that environmental protection is adequate in warfare, but I do not think it is because of the law. I think it is because of our culture or ethic. The problem as I see it is that lawyers and military operators do not want to codify too many constraints. There is a cultural reality that much of what occurs during war is obviously secret; a reality that is used by some to deflect public opinion and to avoid outside intervention or control. When I say "outside", I mean the Air Force avoiding outside intervention and control perhaps even from another Service, or vice versa. I say that environmental protection is adequate because, to some degree, when I heard the presentation in the previous panel I expected examples to be given by the operators of cases where they felt that they could not conduct certain

military operations during warfare because of environmental restrictions and I did not hear any examples come up. There is a presumption, somehow, that environmental regulations and law do restrict operations or that in some way the lives of soldiers and sailors has to be balanced against environmental protection and I believe that dichotomy is false. In fact, the conduct of good military operations, and here again I refer to the United States, are not at odds with environmental protection. And, in fact, the conduct of bad military operations, that is, operations that are done to avoid domestic environmental regulation or international regulation, but are done in secret, ultimately are more detrimental to the enforcement of international law. That is the basis of my paper. I look at a number of examples in which actual practices during the Gulf War contradicted or violated the legal obligations of the United States but because they were done in secret, or because they did not receive as much attention as what the Iraqis did, they are not "lessons to be learned," so to speak. In my paper, I argue that in spite of the absence of any war crimes being prosecuted against Iraq for its gross violations, in spite of the focus away from the Gulf upon the extinguishment of the last oil fires in November of 1991, and in spite of no new laws being promulgated as a result of the Gulf War (no new Geneva protocols), environmental protection has advanced. I examine some limited examples from the Gulf War that I think are applicable to future military operations. First, on a micro-level, I look at the use of certain weapons which I classify as "controversial" weapons. I classify them as "controversial" weapons because none of them are illegal, and here I refer to napalm, fuel-air explosives, cluster bombs, and depleted uranium ammunition. For whatever reason, we read about them in newspapers all the time. When the Ecuadorians and the Peruvians have a little spat, the Ecuadorian press is filled with articles saying the Peruvians are using napalm or when the press goes into Chechnya, the locals say the Russians use cluster bombs. No one really quite knows why they are referring to these weapons, as opposed to other weapons. Why does the news media report that napalm, or fuel-air explosives, or cluster bombs are used as opposed to just good old fashion other kinds of weapons which do similar or worse damage? I am not sure I have a clear answer other than that there seems to be an ethic of understanding of the repugnance of certain types of weapons. Whether you believe that the ones that I have mentioned are in that category or not is irrelevant. As General Linhard said this morning, the use of cluster bombs in the Vietnam War, in terms of going after triple-A on dikes, actually can be demonstrated as being a much less destructive means than resort to other, non-controversial bombs that might breach the dike. Cluster bombs used in urban attacks might be considered a more destructive means because of the high dud rate. Undetonated sub-munitions become virtual mines that have an adverse impact on the civilian population. Depleted uranium is clearly a superior tank killer to tungsten. It is cheaper; it is more efficient. Nevertheless, there is a residual

environmental effect from the use of depleted uranium that has now been demonstrated in the Gulf War and it seems that that classifies it as a controversial weapon. On the micro-level, after I look at certain types of weapons, my paper looks at the bombing of certain types of targets and here I look at two in particular, dams and oil tankers. In the case of dams, the United States and the Coalition did not attack any dams in the Gulf War. There were some suggestions early on by the Air Force that dams be considered as potential targets in response to Iraqi use of chemical weapons as a punitive measure, and three dams were identified by "Checkmate"—Headquarters, USAF Air Staff Planning Group—that would, if struck, have the most adverse civilian effect. They were chosen specifically for that purpose. However, legally they were scrubbed and that proposal was rejected at the policy level. As the war plan developed, and as the war was prosecuted, hydropower stations co-located at dams were looked at very closely in terms of the implications of striking those hydropower stations given the potential collateral damage to dams that might result. The conclusions being that there were methods that were tried and true from Vietnam for attacking those hydropower stations by the aircraft flying parallel to the dam wall, and by the use of precision guided weapons, which would minimize the danger to the dam, therefore hydropower stations were allowed to be hit. Having said all of that, according to the declassified Joint Uniform Lessons Learned System (JULLS) of U.S. Central Command (CENTCOM), the CENTCOM lawyers argued that in the future the U.S. Air Force should bomb dams because if we do not we are going to lose that possibility through some airtight legal restriction. Therefore, dams should be a part of target lists in future operations.

The second target I address in my paper is oil tankers and here the issue of law, of rules of engagement, listening to General Linhard speak earlier today, comes into full force. There were intense shouting matches between Admiral Arthur and General Schwartzkopf about the legitimacy of targeting tankers. The Navy attacked an Iraqi tanker on the 19th of January and sank it, causing a significant spill. That was a 72,000 ton tanker, one of Iraq's largest, presumed to be almost full of oil. Admiral Arthur argued to General Schwartzkopf why is not a tanker as legitimate a target as a dam or electrical power plants that you are hitting in Iraq. General Schwartzkopf argued to Admiral Arthur, "I do not give a [expletive deleted] what you think about whether electrical power plants or oil tankers are lawful targets, I say they are not going to be hit and that is what the rules of engagement say." Now I have interviewed the principals involved, and I have also interviewed the JAGs, and the JAGs all say the same thing, "Well, we do not know what they discussed." So when it comes to really ticklish questions of what to target and under what circumstances, often times they are resolved at very high levels with not much legal scrubbing, and without much legal consideration. But still I conclude that despite the fact the Navy had a very different interpretation of the

rules of engagement than did the CENTCOM staff, and despite the fact that one tanker was hit and then the operation ceased until later in the war when, after the Iraqis started spilling oil, the ROE were changed and Iraqi tankers were again hit, it appears that when you talk about "the rules", they are really important. "The rules" as codified, are really important because at the decision-making level there is a lot of leeway as to what can and cannot be hit. So today we have talked a lot about "commanders," like we were talking about a commander on a ship or a captain in a platoon and what a company might be doing, but, in fact, commanders are also four-star generals and admirals who have at their disposal far more destructive means of attack.

I should also say that one of our Coalition partners, the French, attacked tankers in the Gulf War as well, and they bombed Iraqi tankers moored at the Port of Al Ahmadi in Kuwait and two days later the Iraqis started to expel oil into the Gulf from that port. Now is there a cause and effect? I do not know, but why do we not know that the French attacked a tanker at the Port of Al Ahmadi? Because it is secret, because in order to not criticize a Coalition partner who did not follow the rules of engagement, they just decided to sweep it under the rug. I discuss at the end of the paper my perception of Iraqi views as a result of my trips to Iraq.

At the macro-level, I talk about what I call the "reverberations of military operations" to expand our definition of collateral damage. And here I look at remnants of war which Colonel Finch described in terms of the horrific land mine problem that we are facing worldwide. In the Gulf War, I do not need to tell you that the remnants question was enormous. It just so happens that when you have 1.2 million soldiers and 14,000 armored vehicles on a battlefield, they leave behind a lot of garbage. It is just unavoidable. Nevertheless, a lot of that remnant is toxic and some of it is explosive. The Gulf War saw the largest use of cluster bombs in the history of warfare, some 60,000 cluster bombs dropped from the air, or approximately one third of the munitions dropped from the air. It is estimated, with a conservative figure of 3%-5% duds, that somewhere around 2.7 million bomblets from cluster bombs were left behind. That is approximately the same number of mines that were left behind in Kuwait.

In my paper I talk about the remnants of war in the context of the "toxicity of the modern battlefield" and I use the term "toxicity of the modern battlefield" because of the latest view of the "Gulf War syndrome", and I say the latest view because maybe next week's view will be different. It is a kind of soup, if you will, a toxic soup. The common thread which seems to run between these syndromes, and there are more than one, is that most of the soldiers who are showing these symptoms were exposed to a variety of substances, including vaccines and chemical antidotes, as well as other highly toxic materials. One of the substances that the National Science Foundation pointed to in their report, as did the Rockefeller University in their report, was paint. I am a former Army guy and as any of you

who are former Army guys know, when you paint tanks or Army vehicles, it is done in an airtight environment with tremendous attention paid to human exposure because of the high toxicity of anti-reflective camouflage paint. In the Gulf War a lot of expedients were used in order to do this same thing. It is not coincidental, therefore, that many of the people who have been exposed to "Gulf War syndrome" are from supply and services units, as opposed to those who were in combat units, because those in supply and service units tend to be exposed to more toxic materials. I am talking about the whole gamut, from lubricants, to paints, to solvents, etc. Now, you may think that the "Gulf War syndrome" is pretty far afield, but I do not think you can pick up many newspapers in a week's time in America and not read one or two articles about "Gulf War syndrome." It seems to have evoked enormous emotional energy on the part of veterans and has collected a combination of former POW/MIA activists, UFO activists, antiwar activists, and environmentalists. Actually, the environmentalists seem to stay away from the Gulf War syndrome issue because it has to do with the military, and they hate the military. Nevertheless, the reverberations, the unknowns, the combination of factors, is what is interesting about the "Gulf War syndrome."

When we talk about "long-lasting" and "long-term," we are talking about decades. So even what Mr. Harper said this morning, about how we are going to determine what the environmental effect of Operation Desert Storm was by 1997, is absurd. We are just now beginning to see Kuwait's data about the health effects of the war, just now. Kuwait had a conference in December 1994, where it first began to reveal some resultant health statistics—respiratory diseases up 50 percent, child and infant mortality up something like 25 percent from prewar levels. Are these attributable to the environmental decay that occurred in the Gulf War? We do not know, and we are not going to know for some time.

Reverberations to me are also important because it is a new fad within the U.S. military; this fad called information warfare. I think the Air Force calls it "parallel warfare" and I heard General Linhard refer to it this morning as "strategic paralysis." Everybody has a term for it now. Information warfare is systemic warfare, if you will, an attempt to conduct military operations so as to have a systemic effect on the enemy. The idea is that our societies are becoming so tightly inter-woven and interconnected; that communications and electronics and electricity are so tightly inter-woven, that to disrupt those aspects of society is to have a greater military effect than actual physical destruction. You see this coming out of the Air War College at Maxwell Air Force Base. You see this coming out of Joint Chiefs of Staff Memorandum of Policy - 30 (JCSMOP-30). You see it coming out of the Information Warfare School at the National Defense University. This theory, the thinking, about reverberation and the interconnectedness of society, I find useful and interesting because in the Gulf War the actual prosecution of that conflict was done with the intent of having that reverberative effect. And here I

refer to the bombing of electricity, the bombing of the national electrical grid in Iraq to have a military effect. The fact of the matter is that you cannot show that it had any military effect. The Gulf War Air Power Survey concluded that it is not possible to demonstrate that the destruction of Iraqi electricity had any impact on command and control, or air defenses, or chemical or biological weapons. It had a presumed effect but not a proven effect. A recent article in the Journal of Strategic Studies by Dan Kuehl, who is a professor at the National War College and who was a member of "Checkmate" during the Gulf War, concludes that neither in Vietnam, Korea, nor in the Gulf War can one conclude that the destruction of electricity had any effect. But what was the reverberating effect on the civilian population?

The reverberating effect was that some of the very targets which were proscribed by international law, some of the very targets which the rules of engagements stated could not be attacked—water being the particular one—were effected. As they found on 18 January, the day after the first day of bombing, all of a sudden CNN was reporting that the water was off in the hotel. And I have anecdotes of guys sitting in "Checkmate" in the Pentagon running around saying, "Did you think that the water was going to go off?" And, they said, "[Expletive deleted], we never thought that the water was going to go off." But, all of a sudden, they found that by the systemic attack on electricity, water distribution, water purification, and sewage treatment were similarly effected. So a target which was not physically attacked was disabled by the destruction of electricity.

The impact on the civilian population is, of course, in dispute. Most demographers argue that from 1991 to 1994, 140,000 Iraqi's died in excess of the number that would have died under normal demographic conditions—140,000 people. Now the Air Force argues this figure is not attributable to electricity. It is attributable to sanctions; it is attributable to the [expletive deleted] life in Iraq; it is attributable to the lack of food; and it is attributable to war damage. But, if we are talking about environmental destruction; if we are talking about any sensible reason why you restrict environmental destruction, it is because of the effect that that environmental destruction has on people. And, as I sat here as a true-blue tree-hugger, listening to the two previous presentations about the need to protect marine mammals and endangered species, and all that, I saw a lot of chuckling in the room, and I join you. But the fact of the matter is that environmental protection is about the sustainment of human life, and that may relate to preserving bio-diversity, and preserving an ecological balance, and preserving the natural environment in a state which will sustain human life. But, when we make an evaluation of the environmental effect of warfare, when we talk about the environmental impact, we have to ask what was the environmental impact of the oil fires in Kuwait? What did it do to the Kuwait people? What did it do to their ability to sustain their life in the long-term? And here, ironically, I would have to

say that other than the spotty health statistics which we are just beginning to see, the answer is "not very much." Kuwait is now producing oil at a level of approximately 70 percent of what it was producing pre-war and because of many of the factors that Ron DeMarco described in his presentation, the oil spills seemed to have been mitigated—certainly not to the levels that would have been required in the *Exxon Valdez* or the *Amoco Cadiz*. But, CNN is not there any more; so we do not have to look at it. The Kuwaiti and Saudi interpretations of the level of environmental remediation that is required is different than ours. They are willing to live in that environment, but live they cannot.

Now we heard a lot this morning about the Iraqis this and the Iraqis that. I spent a couple of months in Iraq since the war, on three trips, as a part of the Harvard Study Team. In August 1991, I was there for a month and in 1993, I was there for a month. I had an opportunity to talk to Iraqis and to interview them and to ask them "why." I seemed to have gotten three both direct and elliptical responses. The first thing that all Iraqis say is, "What we did is no worse than what you did." So I say, "What did we do?" And they say, "You bombed nuclear power plants. You bombed chemical weapons facilities. You bombed irrigation barrages. You bombed bridges. You bombed urban areas. You used fuel-air explosives and you used napalm." All of the things that you read in the news, the Iraqis read it as well. So when the New York Times printed an article that said depleted uranium is a problem in Iraq, the Iraqis said depleted uranium is a problem. When I asked them how do you know epidemiologically that it is a problem their answer was, "We read it in the New York Times." They could not produce evidence of higher incidence of cancer; they could not show that there was even any diagnostic effect, but there was a presumption.

Second, there are sufficient documents now that have been released, Iraqi documents, captured in the Gulf War, that conclusively show that the intent of Iraq's destruction of the oil wells was vindictive and had no military purpose whatsoever. I have them in my possession. When I hear you folks, U.S. government lawyers, argue that the Iraqi destruction of the oil wells in Kuwait had some military effect, or that it had a presumed military value, I just am stunned. The documentation is there. The Defence Intelligence Agency has in its hands Iraqi documents that show that in the second week of August 1990, less than a week after invading Kuwait, the Iraqis began to wire together the oil wells to explode them as a totally vindictive measure if they were expelled from Kuwait early. The documents are there, the Iraqi documents are available and yet for some reason, which I do not fathom or understand, in the Conduct of the Persian Gulf War report, the Title V report, and in the presentation by General Linhard this morning, there is this hint that perhaps what Iraq did was justified, and here I will get back to effect and impact. It may have had some military effect but to argue that that was the intent behind what Iraq did is really grotesque. When I have

shown those documents to Iraqi officials, their answer is, "What the military does is not what the Government does."

Number three. What all Iraqis seem to say is that the things that they did had an environmental impact and were extraordinary but that they were "necessitated by the situation." I asked, "How does that comport with your acknowledgement that destroying the oil wells was not done to complicate the targeting of your forces?" What does "necessitated by the situation" mean? And their answer was, "Our military operation was to destroy Kuwait. Therefore, we destroyed the wells because that was what our military operation was." Is that a violation of international law? Yes. But did they see it as being a part of their military operation? Yes. That is what they were directed to do. If they were forced to evacuate from Kuwait, their mission was to destroy the infrastructure.

Next, for those of you who question whether others recognize international law or understand it, I think the Iraqi case is also interesting and instructive. Whether you believe that CNN was a stooge in the Gulf War, or believe that the news media did the Iraqi's propaganda for them, the fact is that on 21 January 1991, when the Iraqis took Peter Arnett to Dour, a village in northern Iraq that was flattened by a B52 bombing attack and was first revealed on TV, or when the Iraqis took Peter Arnett to the baby milk factory, or to the Mosque, or to this place, or that place, they knew enough to distinguish that those were the places that suffered collateral damage. The Iraqis never took CNN to military targets, including electrical power plants. They never took CNN to oil refineries. They never took CNN to government ministries in Baghdad. They took them to the places that anyone who has half a brain, who is not just blinded by thinking the Iraqis are all liars and therefore should be ignored, would accept as cases of legitimate collateral damage. Now the U.S., of course, had an explanation for each case. Nevertheless, it demonstrates that the Iraqis understood what they were doing; they understood the cases. And similarly, consider the acts of perfidy that Iraq perpetuated in the war, such as the case where they created false damage, and the case where they reversed their tank turrets. When I ask the legal people in the Iraqi foreign ministry about them, they pulled out their International Committee of the Red Cross (ICRC) manuals and showed me how those cases were legal. They argued that these were not acts of perfidy; that it is not established in international law that you cannot turn your tank turrets around. When I asked why they turned their tank turrets around they responded, "Because they feared U.S. lasers were going to be directed at the range finders on their tanks and, therefore, that they did not want to have their optical systems facing forward toward the U.S. forces.

What do I conclude from all of this? Well, in my paper I point to all of these controversial weapons and controversial practices and the political constraints, either because of public opinion or because of internal pressure, that seems to have been brought to bear in each case. To conclude, I generally agree with the Mr.

Harper; the law seems sufficient. The basic rules of proportionality and the overlap of these various measures seems sufficient. Does that address Mr. Harper's own argument that enforcement is the problem, when we are the ones that have failed to enforce the law when others broke them? The answer is no. But when the true record of the Gulf War is looked at, when the true examples that challenge international law are looked at, it seems to me that we come up with a very different conclusion. Thank you very much.

Vice Admiral Doyle, Jr.: Thank you Bill, for that very provocative and insightful presentation. I told you he would talk about anything. It is my pleasure to now introduce the commentator for our panel, Dr. Arthur Gaines. Arthur is a Research Specialist with the Marine Policy Center at Woods Hole Oceanographic Institute. He conducts research on ocean economics, law, policy, and management. He is the author of several papers on biochemistry and estuaries in the coastal ocean. Arthur.

Dr. Arthur G. Gaines, Jr., Woods Hole Oceanographic Institute: Thank you Admiral Doyle. I would like to start by telling you something about myself and my own viewpoint. My background is in the environmental sciences and oceanography. I am interested in how scientific information can be brought to bear on making better decisions. At the same time, I would call myself an environmentalist. I give more money than I like to think about to environmental groups, principally land preservation groups and environmental education groups. I find that the professional end of what I do is very often at conflict with these sentiments and often puts me on the opposite side of the table from people who call themselves environmentalists. I see a number of inconsistencies among so-called environmentalists or people who espouse environmental concerns that make me feel that, in a way, they are their own worst enemy. For example, everyone is concerned about oil spills, but when was an environmental impact statement performed on the use of asphalt all over the world for paving roads? That is a lot of oil. If people see oil on the beach, it is a crisis. But what about all the roads that are made of oil? What about farming? What about an environmental impact statement on farming? Farming is one of the most destructive environmental activities around. The entire bio-diversity of farm land, in essence, is reduced to one species. Wheat, rice, whatever is growing. The use of pesticides is very damaging to normal insects and organisms that would inhabit a farmed area. The use of nutrients has a very widespread impact on the quality of drinking water, the water quality of adjacent ponds, the receiving waters, rivers, and so forth. There are places in the American West, in the farm belt, where the ground water concentration of nitrite fertilizer is sixty parts per million. That is six times greater than the drinking water standard permitted by the Environmental Protection Agency. Yet you do not hear people saying farming is an environmental problem.

Before I get into the substance of my comments, I would like to point out that people feel that environmental protection is consistent with the best human interest, while I would say that they are often at odds. Farming is not consistent with the best environmental concerns. Farming destroys the environment. People, especially environmentalists, but everyone to a certain extent, have a feeling that nature is peaceful and that we should seek to emulate nature for peace and harmony. I took a course in parasitology years ago in college and the quote in the front of that book by the author, Chandler, was that we think of nature as peaceful and we seek to emulate it, yet in every meadow, in every stream, under every rock, in every creek, there is murder, destruction, and suffering going on all the time. I think that is a more balanced view than the idea that nature is very peaceful. That concludes my introductory comments. Maybe you will see where I am coming from.

Secondly, I would like to tell you something about the institution I represent because I do not ordinarily meet with a group like this and I thank Professor Grunawalt for inviting me. Before I begin, I would like to congratulate the panel on their very interesting papers. Every one of them was interesting and, in fact, I have noticed in the course of the day, that there is really very little distinct disagreement among them. I hear people falling in different places on the spectrum, but other than the outcome of the Ottawa Conference, I do not see any distinct disagreements. One of the advantages for someone like me to be here is that it provides an opportunity to get to know some of you and the organizations you are with, and vice versa.

I am with the Woods Hole Oceanographic Institution. Most of you who know of the Institute think of it in terms of basic ocean research. Our organization obviously has an administrative layer that provides administrative services, that operates our ships and submersibles, and that administers research, and so forth. The level at which research and creativity are accomplished, and the level at which proposals are written and sent out, is the next layer down. This second layer consists of 250 people, approximately, who do work in physical oceanography, biology, chemistry, geology, and ocean engineering. We have a third layer with Centers, which tends to bring those disciplines together again in interdisciplinary kinds of work. I am with the Marine Policy Center. At the present, we consider ourselves as sort of the "proto-department". We may become the sixth department at the Institution at some point. The Marine Policy Center, unlike all of the other departments that deal with earth sciences and engineering, incorporates the disciplines of law, economics, policy analysis, science and technology, and we conduct work on the law of the sea among other topics. My own background is in biology, geology, and oceanography. My work focuses on how marine science and technology bears on the decision-making process for use of the environment, for use of the ocean, and for its protection.

My terminology in some of these discussions of military matters could be way off because I am not use to talking about these things. If it is, I will my correct paper for the published version. To evaluate the environmental impact of military systems, of having a military, one needs to consider the whole thing, in essence, from the beginning to the end. I see really two separate categories of environmental impact. One of them is associated with military preparedness, which involves all of the industrial support, research and development, production, transportation, storage, and so forth, associated with providing the military with the wherewithal to defend the nation, and it consists of non-warlike military operations. This would include training camps, operation of bases, storage of ordnance, training, and also, activation and deployment of forces. It does not involve any armed conflict. This category of military activity is typically conducted in a climate where, since there are no casualties, no one is upset, where there is generally more clear thinking. There can be a state of what you might call—efficiency. Materials are used efficiently and carefully, compared to what it might be under other circumstances. What I am saying is that environmental preservation, environmental regulation, and environmental protection are all consistent with this activity. There is no reason to believe that it is not possible to be responsive to these constraints. From what our military speakers here have said, the comments that I have heard today on that military preparedness side, we can talk reasonably about environmental protection in association with military activities. But, consider military activity that involves armed conflict. Under conditions of armed conflict, the stable mode I would propose is one of maximizing power. Even in the case of limited armed conflict, you would still see a tendency to maximize the delivery of force and power within the boundaries of the limits imposed by law and policy. Under those circumstances there are casualties, there are more likely to be accidents, things are likely to happen fast, decisions need to be made quickly, alternatives evaluated, and so forth. Nevertheless, in the case of limited armed warfare, the conflict is still limited. There is rational thought, and to some extent, but perhaps not as great as in the military-preparedness side of the equation, environmental protection can be a reality. I think what we have heard today confirms that it is a reality under those circumstances. Now, when we speak of unlimited armed conflict, what I call, total warfare or strategic scale conflict, in which we are talking about employment of intercontinental ballistic missiles, hundred megaton scale nuclear weapons, and the like, in that context we can no longer talk about environmental protection. If the situation gets to that level, there is no discussion of protecting the environment. It no longer makes any sense.

We have not heard too much today about the environmental impact of the industrial military support infrastructure, and I am not going to try to do it myself. The whole nuclear fuel cycle is one which we have discovered has fundamental environmental significance—the storage of waste products, their transport,

reprocessing, accidents, and so forth. With respect to weapons development strategy, research and development of some weapons seems to be completely inconsistent with the idea of minimizing adverse environmental impacts. For example, one of John Craven's examples is the low altitude nuclear ballistic missile. It is, in essence, an unshielded nuclear reactor carried in a cruise missile that lays down a lethal 500 rad swath of radiation beneath it as it cruises for months at a speed of Mach 3.5. Now that weapon could not even be tested without having a hideous environmental impact. According to John Craven, apparently it has been developed, and there is one in a lead crypt somewhere. My point is that important decisions need to be made about research and development of weaponry which will have significant environmental impact.

Military operations which do not involve armed conflict, including training, readiness, and deployment, as well as the operation of military bases, have not, in the past, been conducted in ways that are always concerned with environmental impact, although we are improving in this area. Similarly, the activation and deployment of forces is often associated with an increase in environmental accidents, as I mentioned earlier. Here too, military activity could be made more amenable to environmental protective measures.

The ground water plume at Otis Air Force Base on Cape Cod is an example of a problem that started during the early part of World War II when Camp Edwards was used as a staging area to deploy troops. Hydrocarbons, nutrients, and other materials were dumped into the ground. The resulting plume is 11,000 feet long and has closed down one of the wells of the town of Falmouth. This is a problem that in the future we do not need to have. I am not inclined to go back and point fingers for something that happened fifty years ago; I do not think that is appropriate in any way, but we do not need that to happen in the future.

Finally, with respect to limited armed conflict, there are at least three areas where there can be mitigation of adverse environmental impacts. One is in target selection. As an example, presumably you would not want to hit an active plutonium plant given the grave potential danger that the release of plutonium would have on the civilian population. There are other legitimate military targets that you would not want to hit as an environmental measure. Whether you did or not would depend on what the pros and cons were, the military advantages, and environmental disadvantages, and I think that there is room there for environmental concern. Such targets might include electrical grids, water systems, sewage treatment plants, transportation networks, communication facilities, and so forth. Whether you hit them or not may be a matter of debate, but there could be some environmental concerns expressed there. Civilian targets, such as the Bhopal-kind of fertilizer production plant, may best not be hit if you are concerned about the environmental consequences of doing so.

There are tactical methodologies that I have heard discussed here today that can avoid or minimize adverse environmental impact. For example, the capture of an oil tanker instead of its destruction. If it is possible to capture or disable it instead of sinking it, that has presumably a significant environmental consequence. A civilian population could be demoralized by information, rather than by destroying their city, possibly. Use of weapons that are not likely to have large collateral effect is a similar methodology that we have heard a lot about today. In terms of specific weaponry used in armed conflict, we should consider the longevity of their environmental impact when evaluating the desirability of their employment. I would add remediation as a further consideration, which Mr. Arkin also mentioned. We should ask ourselves, "How easy will it be to clean up this situation? How easy will it be to prevent ongoing impacts?"

I am supposed to know something about environmental impacts and I have only pessimism to transmit to you today on that issue. When we think about this subject we should recognize that there are hierarchies of organization in the environment, the ecosystem being the largest. Habitats taken together, make up ecosystems and within each habitat are various communities, which, in turn, are assemblages of different kinds, different populations of organisms. A population is an assemblage of the same kind of species and so forth going down to the gene. Acute environmental impacts, those in essence that involve very quick death, are the only category of impacts in all of those systems that we have any kind of handle on. We use measures as LD-50, lethal dose 50. If you add different amounts of chemicals or toxicant, or you change the temperature in increments, at what point do you see death of the adult or death of the juvenile or collapse and loss of the community, and so forth. There is some hope in understanding acute impacts and having something to say about them. But, when it comes to chronic impacts involving increased susceptibility to disease or impaired feeding or impaired competitive ability of a species as a result of something that has happened, these are very difficult, if not impossible, to predict. They may take months or years or decades to express themselves in any particular case. Take, for example, the decline of coral reefs. No one knows why coral reefs in some areas are declining. This decline is not sudden, it has happened over a period of decades.

Another way to gain some perspective on all of this, and to understand the resilience of individual organisms and communities, is to look at natural disasters. Obviously, natural disasters have been happening for hundreds of millions of years. And obviously, people have little or nothing to do with any of them, except possibly fire. What I have tried to do in my paper is say something about the frequency with which natural disasters occur, the area that might be affected by them, and something about the longevity of their impacts. I make a totally gut impact assessment using an arbitrary scale of one to ten, where one is a very small impact and ten is certain major destruction. As an example, at least every few

months some place is hit by lightning. An individual lightning strike would affect, generally, a small area. You could be very close to a bolt of lightning and you would not be affected. The longevity of the adverse environmental impact of a lightning strike might be as long as one year. Maybe you could see where lightning struck or split a tree or destroyed a house a year later. It's immediate impact could be either very little or it could kill people. Conversely, tornadoes are very severe natural events that may have a war-like impact. Certainly volcanoes do. In the Galapagos Islands, volcanoes have spewed molten lava over 100 square miles of land. Now if you have hundreds of square miles of land buried in burning lava you could have a very serious impact on birds and tortoises, and so forth. Earthquakes may cause widespread loss of life, as did the recent Japanese earthquakes. The destruction in San Francisco, California resulting from the earthquake of 1989, involved major losses in civic infrastructure. Floods can be equally devastating. The hurricane now battering the Virgin Islands also has a war-like impact. A meteor impact may have a huge impact on the natural environment with nuclear-like consequences, that is a nuclear winter-like scenario, darkness, dust, loss of huge populations of species throughout the world. The longevity of the meteor impact that killed off the dinosaurs a hundred million years ago is still here. Mankind probably would not be here if that meteor had not hit. We are still living with that impact. I would say that nuclear war, total war, would have an impact like that meteor impact. The point of this is that if we look at the range of natural disasters, it does not provide rational arguments against warfare. The range of natural disasters is about as bad as warfare. Yet, natural systems recover from fire, flood, hurricanes, and so forth. When you destroy a dam, what you are really doing is turning a situation back to what it use to be. Destruction of dams is said to be environmentally destructive, but building the dam in the first place was environmentally destructive because it drowned everything in the upstream valley. Destroying the dam returns the valley to what it use to be, although it has horrible short-term consequences for people.

One final point. The direction of environmental concerns and environmental doctrine around the world is getting increasingly stringent and will have an increasing impact on the military. The nebulous concern with environmental protection that we see now is almost nothing compared to what is coming.

Let us look for a moment at the "precautionary principle" of Agenda 21. In its most stringent wording it turns around the concept of the environmental impact statement to look at it the other way. It is not saying that in order to do something you have to examine the circumstances and see whether it may or may not have an adverse environmental impact. What the precautionary principle says is that unless you can prove that there is no impact in advance you cannot go ahead with the proposed activity. This would typically be applied to industrial development, and so forth. But, can you imagine waging warfare under circumstances where you

have to prove that the armed conflict will not have an adverse impact on the environment in advance? Another emerging doctrine that is becoming increasingly common is the notion that the "polluter pays." If an industry has damaged the environment and it can be demonstrated that it has damaged the environment, it must pay to put things right. That kind of thinking presumably can have a huge impact on the military. There is also increasing provision for wide public participation in the permitting or evaluation of environmental impacts. I am not sure that we will necessarily see increased public participation in military activities as well, but that is probably going to be a problem in the future. Requirements for research and monitoring, and financing that research and monitoring, are already happening but are likely to increase and become greater in the future.

I would just close by again thanking Professor Grunawalt and the panel and Admiral Doyle for the opportunity to speak.

Vice Admiral Doyle, Jr.: Thank you, Arthur. We are now open for questions from the floor.

Dr. Glen Plant, London School of Economics and Political Science: I am going to attack Bill Arkin. Bill, for a tree hugger you take a very anthropocentric view of the environment don't you? You are looking at human health aspects alone. You are not taking into account the biological or the aesthetic aspects. And, you are saying that what we did to the Iraqis was worse than what the Iraqis did to us, without looking at the intention behind the acts and without looking at the harm that was done overall, which was surely the only fair process to undertake.

Mr. Arkin: I do not know that I said that what we did to the Iraqis was worse than what they did to us. I do not believe that, and if one has an anthropocentric view of the world, obviously aggressing upon one's neighbors and violating all of the standards of conduct in law are much worse than defending against that aggression. So that is my answer. As for my anthropocentric view of the world, I guess that's why I do not work for Greenpeace anymore.

Vice Admiral Doyle, Jr.: Any other questions? Yes, Captain Rose.

Captain Stephen A. Rose, JAGC, U.S. Navy, U.S. Atlantic Command: Also a question for Mr. Arkin who struck a lot of sparks here. I get the sense that your confidence in the "environmental common sense" is just that. That there is an ethos, or a common sense in the public weal that acts as a self-regulating

mechanism and that a lot of what we are about here seems to be a kind of nit-picking or juridical soul-searching that is unnecessary. Could you elaborate on that a bit?

Mr. Arkin: A friend of mine who read my paper said, "You do not want to say this Bill." One of the points he made was that in real wars, not the Gulf War, maybe these weapons or these methods or means of warfare would be used or people would perceive their use to be important because they were connected to military necessity. Whereas, in the Gulf War, surplus military capability allowed the Coalition to have many more choices and, therefore, it's compliance with the law was easier to ensure. I guess that is a flaw of my argument. Nevertheless, I think it is important to argue that environmental protection is codified in our behavior and actions, regardless of what U.S. interpretations of Additional Protocol I are or of what the law might be. If we have virtual compliance, to use a computer term that is popular today, it is important to codify that virtual compliance. The fact of the matter is that for political and public relations reasons we did not do certain things because the political leadership and military leadership perceived that doing them would have an adverse effect on public opinion. To demonstrate and promote that, I think, enhances the cultural norm because it creates virtual compliance. I would prefer to see that napalm or fuel-air explosives, or certain types of weapons or methods of warfare not be applied because of their adverse humanitarian effect and limited military utility rather than to argue endlessly about whether we should have better laws for that same effect. I think in the court of public opinion and the court of the real world, certain things are not done because of the perceived impact, as opposed to because of the letter of the law.

Professor Christopher Greenwood, Cambridge University: I would like to startle Bill Arkin enormously by saying that I agreed with some of the things he said, not all of them, just some. I am quite sure that had we been able to put together a symposium that also had some 20 representatives of Greenpeace on one side of the room, probably not the same side as most of the rest of us, and 20 or so representatives of the Iraqi Government, they would currently be attacking Mr. Arkin's paper also. Whether that would make him feel better or worse I do not know. I would like to take up a point that Bill Arkin made and tie it into something that Dr. DeMarco said in his presentation and that is the very considerable difficulty of proving certain effects in times of war. Now, to some extent that is because unless you defeat your adversary completely, you just do not have access to the raw informational material at the end of the conflict. We do not know some of the effects that took place in Iraq because the Iraqi Government will not give us that sort of information, indeed, may well not have it itself. But, there is, I think, a very considerable danger in this area in taking received wisdom as though it was proven scientific truth and that was something that as a non-scientist, I found

enormously valuable in the two presentations about the impact of armed conflict on the marine environment. What you find, if you look at the history of warfare, is that certain assumptions are made about the effect of military operations, that is, what you could and could not achieve by way of bombing, or how accurate bombing was capable of being, *et cetera*. But what hatched in the First World War, and then carried through and was treated as though were written on tablets of stone in the Second, turned out to be totally untrue. Now that is the danger on one side. The danger on the other is that you take a case where you cannot prove conclusively what military effects were brought about by depriving the Iraqi armed forces of access to their ordinary electricity supply. You cannot prove what those effects are and compare them with observable collateral side effects of those attacks on the power stations. There is a danger in saying, "Well, here you have an unproven effect, here you have a proven one. Let us focus on what we can prove, and ignore the other side of it completely." That, I think, would equally be a very considerable mistake. So taking a single, isolated, provable part of the effect on the environment and discarding all of the much more difficult aspects would, I think, be to misunderstand the way in which international law requires us to look at the environmental effects of warfare.

Professor Michael Bothe, Johann Wolfgang Goethe University: My question is for Bill Arkin. I am puzzled about the question of the role of law. Do you think that the fact that most of us do not kill has nothing to do with the law, just habits, and common sense? This seemed to be your implication, and being a somewhat self-respecting lawyer, this of course, is a stance that I could not accept. I think the role of law is to give some certainty of expectations, to put some order in social rules and that is a salutary role. Having said that, I know of course, that the motivation of a particular person behaving as he or she does is not exclusively inspired by legal considerations, it is a multitude of factors. It is culture, but please, the law is part of that culture and, therefore, it matters. I wonder whether you did not neglect some parts of this culture, which I agree with you, is changing indeed. That being so, I think what is necessary is a cool evaluation of what really happened and, therefore, I think the exchange is particularly valuable because what used to be a traditional perception of admissible or non-admissible damage may not be admissible in the current circumstances, because the social conditions, the physical conditions, are changing. There are no more free spaces because the impact of the things we do is felt around the globe. If you hit the life support system of a big city, that is different from what it was even in the Second World War where the individual still lived in a context where life support systems of the big cities did not matter in the same way they do today. I think your paper has shown this quite well and in this respect I agree with you. Not any other.

Dr. John H. McNeill, U.S. Department of Defense: I also found the discussion very interesting and, following on some remarks that Chris Greenwood just made, I would like to focus on what Mr. Arkin was referring to earlier as the ethic, as opposed to the law. We can and will argue about what the law is, but with respect to the ethic and the realization that many of the environmental effects of military operations are not proven—perhaps are unprovable and unknowable, at least during our lifetimes—it seems that the ethic operates in a manner which affects political self-deterrence, at least in examples that we are familiar with here in the United States. I think a comparable example to the environmental side was the self-deterrence that operated at the end of the conflict in Iraq. You will recall that the media was very interested in what was going to happen with respect to the so-called "highway of death", which many of us remember quite vividly. That too involved an ethic that resulted in political self-deterrence. Similarly, we did not take actions in reprisal against Iraq for the wanton destruction of the 732 well heads. The law might have permitted us to do that, but we did not do it. Reprisal action in that instance was seen as something that was, as a matter of public policy, unacceptable. So I am wondering if the suggestion made by Mr. Arkin, that we ought to, in affect, codify these rules, is meant indirectly as a suggestion that the United States, and perhaps other members of the Coalition in the Gulf, other Western countries particularly, might similarly be self-deterred and, therefore, would benefit from rules that they were forced to observe as a political matter, being accepted and forced on others, even though there might not be the scientific ability to appreciate what the threat to the environment would be from the actions that would, thereby, be prohibited. It is an interesting proposition. Would you care to comment?

Mr. Arkin: Let me just answer Professor Bothe first and say that I spoke that the law was adequate. I did not say that it was irrelevant. I just felt that the existing law provided the framework for everything that has been discussed today and I have heard nothing yet that says to me that what we have discussed does not fall within the framework of existing law. That is all. I meant adequate, not irrelevant.

I think that enforcement does relate to deterrence and I will give you an example. Since the end of the Gulf War, the U.S. Government has been arguing very vociferously that Iraq is practicing a form of ecocide in the Southern marshes by diverting water away from an area that sustains an indigenous marsh life culture. The CIA has issued reports; a lot of attention has been paid to this. Madeline Albright has brought it before the U.N. Security Council. When I was in Iraq in 1993, I was taken on a Government trip to the marshes, including an Iraqi helicopter ride—which was scary in its own right, because I thought I might be shot down in the "No Fly Zone." One of the things that the Iraqi environmental people, and there are Iraqi environmental people, argued was that as mere

functionaries in a scientific ministry they did not really see why their changing the course of the Tigris River and their various canaling and channeling irrigation projects, as they called them, could possibly be construed by the United States as a violation of ecological international laws. They said, "Look at what Iraq did in the Gulf in terms of blowing up all those Kuwaiti oil rigs, *et cetera*. The international community never took any action as a result of what we did to the environment there." So their attitude was, "What we do to our environment is different from what we might do to your environment and since there is not enforcement of some standard practice that says we cannot do something to our own environment, than we just assume that what we do in our country is our own business." A part of my answer to you would be that I can show that the lack of any kind of international enforcement had a real impact in that the Iraqi's perceived that they might get away with something that they otherwise might not have. Another thing I would say would be that all of this discussion of the Gulf War is both instructive and irrelevant because of the many unique qualities of that conflict and the fact that we had choices to make there that we may not have to make in the future. It was a type of conflict where you could actually sit and choose targets to hit, sit and choose weapons to use, and sit and decide whether you are going to launch a ground war or not—I think Larry Freedman called it "war by appointment." It seems that that is war of a very different quality, where a lot of these issues of reprisal and heat of passion and what is done when you feel like you are losing a war or when you feel like you really have to do something to give yourself a step up in a war, does not really come into play. That was the situation in the Gulf War, at least on our side. That, I would say, is in agreement with Professor Bothe's point that the law is really important. You need to have legal standards, even in this nice casual war, to say these are still things that if this were a heated, passionate war, one could not do and it is unfortunate in that regard that there are a lot of Iraqi's running around, including the Iraqi leadership, who in 1995 feel that they got away with murder, literally. The U.S. Government, I think, has been a part of that unfortunate policy.

Vice Admiral Doyle, Jr.: We have to close our discussion here and I would like to thank the panel.

PART FOUR

PANEL III: THE EXISTING LEGAL FRAMEWORK, PART I—PROTECTING THE ENVIRONMENT DURING INTERNATIONAL ARMED CONFLICT

Chapter XIII

Oceans Law, the Maritime Environment, and the Law of Naval Warfare

Professor George K. Walker*

I. INTRODUCTION

Persian Gulf armed conflicts during 1980-88 (the Iran-Iraq conflict) and 1990-91 (the Gulf War between Iraq and the U.N. Coalition after Iraq's invasion and occupation of Kuwait) have resulted in environmental degradations of Gulf waters and the land and airspace over States party to the conflicts. Perhaps the worst of these was what a *Time* writer called a "Man-Made Hell on Earth"[1] when Iraq dynamited over 550 of 684 producing Kuwaiti oil wells in early 1991 during the Gulf War.[2]

This paper does not address environmental issues related to land and air warfare. Rather, the ensuing analysis explores the maritime aspects of these wars, *i.e.* the "Tanker War" in the Persian Gulf during 1980-88, and conflict at sea during the Gulf War of 1990-91, in their environmental contexts.[3]

In 1983, Iraqi rocket attacks hit Iran's Nowruz offshore drilling facilities, causing a 20-million barrel oil spill into the Gulf. Although early reports that the slick had equalled the size of Belgium were later discounted, it was big enough to threaten Bahraini, Qatari and Saudi desalination plants before strong winds blew it offshore and partially dispersed it. Fish imports into the United Arab Emirates (U.A.E.) were stopped becuase of oil contamination in the fishing grounds. Iraq rejected Iran's request for a partial truce so that oil cappers could try to stop the 2000-5000 barrels per day flow. The result was that the leakage lasted for nine months.[4] This may have been in response to Iran's attack on Iraqi oil terminals and ports early in the war, which resulted in their closure. There are no reports of significant pollution of the Gulf resulting from these attacks.[5] In 1986, Iraq bombed Iran's Sirri, Lavan and Larak oil terminals, and Iran attacked the neutral U.A.E. Abu al-Bakoush oil installations. In none of these cases were there reports of significant spillage into the Gulf.[6] The next year, U.S. naval forces attacked Iranian offshore oil rigs used as an Iranian gunboat base in response to Iran's Silkworm missile strike on a reflagged tanker, *S.S. Sea Isle City*, in Kuwaiti waters. There is no report of petroleum spillage on the high seas resulting from either attack.[7]

Tanker War shipping losses from attacks by both belligerents were another source of marine pollution during that conflict. Although most tankers traveled in ballast to the Gulf, they and incoming cargo vessels had bunker fuels aboard. All outbound ships also had bunkers aboard, and nearly all tankers leaving the Gulf departed with a full load. These vessels, as well as inbound and outbound cargo ships, were attacked by the belligerents. Iraq and Iran also laid naval mines, either initially set adrift or which came loose from their moorings. Several merchantmen, among them neutral flagged vessels, were mined. A U.S. warship, *U.S.S. Samuel B. Roberts*, was seriously damaged by an Iranian-laid mine in 1988. Iraqi aircraft attacked tankers escorted by Iranian warships, and both countries conducted land-based air attacks on merchant ships, primarily tankers, of neutral flags, some of which were under convoy by neutral warships. Iran used its surface navy to attack these vessels as well. The U.N. Security Council twice condemned these attacks and the result on the environment. In 1987, an Iraqi Mirage I aircraft mistakenly launched two airborne Exocet missiles at, and seriously damaged, the U.S. warship, *U.S.S. Stark*. Another source of marine pollution came from losses of naval vessels, principally those of Iran, hit as self-defense measures following attacks on U.S. naval vessels. The conflict was a major war, not a small one, particularly when the commitments of Iran and Iraq were measured. For the only time since World War II, deliberate, sustained operations were carried out against merchant ships.[8] Iran and Iraq attacked more than 400 merchantmen, sinking 31 with 50 more declared total losses. Write-off losses stood at nearly half the World War II tonnage sunk.[9] The Second World War lasted for just under six years. The Iran-Iraq War ground on for eight years. The reason for the disparity between the relatively small number of ships lost and the huge tonnage losses is, of course, the larger displacement of merchant vessels in the 1980s. The possible result when a tanker was attacked during 1980-88 was the risk of a considerably larger oil spill for each ship attacked than during World War II.

Ten days after the U.N. Security Council-authorized Coalition action to drive Iraq out of Kuwait began during the Gulf War,[10] Iraq opened valves of its Mina al-Bakr offshore terminal and occupied-Kuwait's Sea Island terminal. Iraq also dumped oil from five tankers at Mina al-Bakr. From 3 to 16 million barrels of oil flowed into the upper Gulf. When the oil reached Arabian peninsula shores, thousands of migratory birds died in the muck. Fishing grounds were ruined. The food chain for all forms of Gulf wildlife was interrupted. Beaches were made unusable for the tourist industry. Saudi desalination plants, which supplied the civil population and Coalition military forces with drinking water, were threatened. Coalition air forces stopped the flood by bombing the pumping stations.[11]

There was little destruction of merchant shipping during the 1990-91 Gulf War. The U.N. embargo and authorizations for interception and diversion of Iraq-bound

vessels did not result in any attacks.[12] Only a few Coaltion warships were damaged, mostly by mines, and although Iraqi naval forces were destroyed, they were mostly small ships. Most vessel-source pollution came from the Mina al-Bakr tankers.[13]

As both conflicts make clear, if the belligerents who initiated environmental degradation had hoped to improve their fortunes on the battlefield by these tactics, any optimism went a-glimmering. The Iran-Iraq war wore on for five more years before ending in mid-1988. The Iraqi attack on Nowruz was not a war-stopper, and leakage from stricken merchantmen did not even receive media attention. Similarly, blasting oil wells and dumping Kuwaiti crude into the upper Gulf during the 1990-91 war did not influence events appreciably.[14]

Although environmental damage and restoration were not as long-lasting as first predicted, the economic loss was staggering.[15] Oil spills and resulting slicks dwarfed the size of previous accidental spills. Perhaps 24 times as much oil as was released in the 1989 grounding of *Exxon Valdez* in Alaska's Prince William Sound, went into the Gulf because of Iraq's actions in 1991.[16] The 1978 allision and breakup of *Amoco Cadiz* resulted in a spill a fourth or less of Iraq's deliberate discharge in 1991.[17] There is no account of how much leaked from damaged or sunken ships during the Tanker War, but since many merchantmen that were hit carried petroleum, it may have been considerable. Damaged or sunken warships undoubtedly leaked bunkers into the Gulf.[18]

The foregoing survey does not include oil going overboard in deballasting or from land-based sources not connected with armed conflict. Worldwide figures for this pollution rose from about a million metric tons annually in the 1960s to nearly 7 million tons in 1973, with over half from land-based sources and 35 percent from ships. Two-thirds of the latter have been said to be from "routine tanker operations."[19]

Environmental degradation during international armed conflict is not a new phenomenon. Pollution of the sea on a measurable scale during warfare at sea has largely been an aspect of Twentieth Century conflicts, particularly after oil replaced coal as the primary source of energy for steam-powered ships, and the world began to consume petroleum as the primary fuel for transportation, as a major source for heating, and an ingredient for plastics and other products. The Persian Gulf has been a particularly busy highway for transporting petroleum, since a high percentage of the Earth's proven reserves are within the territories of States bordering the Gulf. The problem of pollution of the oceans is not new[20] or confined to the Gulf. However, the recent Gulf wars have merely underscored issues that have arisen on a worldscale basis, usually in the context of accidents through collisions or groundings of tankers. These accidents, like the loss of *R.M.S. Titanic* in 1912 and the resulting 1914 Convention for Safety of Life at Sea,[21] have tended to be catalysts for treaties or other action to prevent recurrences.[22]

The world little noted warnings of the potential for environmental degradation of the seas before, during and after the Tanker War.[23] However, there were numerous claims that Iraq had violated existing international norms, notably those in the Environmental Modification Convention[24] and Additional Protocol I[25] to the Geneva Conventions of 1949,[26] which declare principles of humanitarian law during armed conflict. The U.N. Security Council passed Resolution 687, declaring Iraq "liable under international law for any direct damage, including environmental damage and in depletion of natural resources, or . . . injury as a result of [its] unlawful invasion and occupation of Kuwait."[27] There were also calls in the United Nations and other quarters for action in the form of additional legal protections, *e.g.*, a Fifth or "Green" Geneva Convention to protect the environment during armed conflict.[28] The latter efforts largely came to naught, primarily because participants concluded that no new agreements were necessary if existing ones were enforced.[29] The question of belligerents' culpability for environmental damage during international armed conflict at sea remains as a possible source of rhetoric, if not law, in future conflicts. Publication of the *San Remo Manual* in 1995 [30] demonstrates that the issue remains alive in commentators' minds, as does this Symposium.

This paper is a partial summary of principal findings of my research on this complex subject and is limited to the law of the sea, the oceans environment and how these sometimes overlapping bodies of law relate to the law of armed conflict at sea, *i.e.* the law of naval warfare. Land-based aspects of environmental issues (*e.g.*, transborder air pollution), and problems related exclusively to land warfare or air warfare above the land, are not discussed.

II. The Law of the Maritime Environment, the Law of the Sea, and the Law of Naval Warfare

There is an enormous volume of law related to the maritime environment, most of it in treaties appearing since the 1958 Geneva Conventions on the Law of the Sea.[31] If international agreements related to conservation of marine resources[32] or maritime safety[33] are considered, insofar as observing these standards would promote a better oceans environment, there were scattered efforts at protection of the oceans well before 1958. The same is true with respect to the law of naval warfare, where treaties negotiated to regulate aspects of warfare or humanitarian principles to be observed during war derivatively benefit the environment, particularly when conflict at sea has impact ashore. Agreements of this nature include the 1907 Hague Conventions dealing with shore bombardment and mine warfare[34]; the 1925 Geneva Gas Protocol, whose prohibitions on gas and bacteriological warfare affect human and nonhuman inhabitants of the environment[35]; the 1935 Roerich Pact[36] protecting monuments, etc., ashore; parts of the 1949 Geneva Conventions[37]; and the 1954 Hague Cultural Property

Convention,[38] which provides *inter alia* for safe sealift of protected objects. There is thus as deep a legacy of what today are called environmental concerns in the law of armed conflict as those agreements dealing with pollution or species protection, which today might be lumped under the same rubric.

The 1982 U.N. Convention on the Law of the Sea[39] is the first worldwide multilateral agreement attempting to deal comprehensively with maritime environmental problems. For those countries that are or become parties,[40] the Convention will replace the 1958 LOS Conventions.[41] Bahrain and Iraq ratified it in 1985, and Kuwait in 1986; many other countries, *e.g.* France and the U.A.E., were signatories, but other States with prominent roles in the Gulf wars—*e.g.*, the United Kingdom and the United States—were not signatories or parties during the Tanker War or the 1990-91 conflict.[42] Thus, for some States there was an obligation not to defeat the object and purpose of the Convention during part of these confrontations,[43] and others were bound by the custom the Convention restated.[44]

The Convention has different provisions dealing with the welter of custom and treaties affecting the maritime environment; it continues 1958 convention provisions stating the relationship between the law of the sea and the law of armed conflict and its component, the law of naval warfare.[45]

A. The Relationship Between the 1982 LOS Convention and Other Environmental Treaties

The 1982 LOS Convention will be an effective if mild trumping device—much as the U.N. Charter, Article 103, declares that Charter norms supersede those of all other treaties[46]—for agreements related to maritime environmental protection, whether already in force or to come into force, which may have special terms but which "should be carried out in a manner consistent with the general principles and objectives of [the] Convention."[47] This is slightly different from Article 311(2), the general supersession provision for the Convention, which declares that it does not alter existing rights "which arise from other agreements compatible with this Convention" and which do not affect enjoyment of other parties' rights or performance of their obligations.[48] The upshot is that all agreements in place or to be negotiated, if related to the generally-stated environmental norms of the Convention, must conform to these Convention norms.[49]

Reading of Part XII of the 1982 LOS Convention,[50] as well as many references to environmental standards scattered elsewhere throughout the document,[51] demonstrates that specifics are more often found in other agreements, perhaps bilateral, and frequently regional in recent years. The latter have been often sponsored by the U.N. Environment Programme (UNEP), which developed after the Stockholm 1972 U.N. Conference on the Human Environment.[52] Examples of these include two that are particularly relevant to this analysis, the 1978 Kuwait

Regional Convention and Protocol[53] and the 1982 Red Sea Convention and Protocol.[54] Although the Persian Gulf was the principal theater of maritime military operations during the 1990-91 Gulf war, there were many Coalition interceptions of Iraq-bound merchantmen in the Red Sea, and some missile and air strikes were launched from there.[55] In many instances, detailed regulations are developed by administrative bodies established by the treaties.[56] This procedure is contemplated in the 1982 LOS Convention.[57]

There is the possibility, of course, that a parallel but contradictory custom[58] or other source of law may develop alongside Convention-based norms.[59] The developing customary norm might be the same as, and thereby strengthen, the Convention norm.[60] If in opposition, the custom will weaken the treaty norm.[61] However, no treaty, and probably no custom, can supersede the U.N. Charter, mandatory norms developed under it,[62] or *jus cogens* norms.[63]

B. "Other Rules" Clauses in the Conventions

Both the 1958 and 1982 LOS Conventions include clauses, sometimes overlooked in analysis or commentary, stating that rights under these agreements are subject to "other rules of international law" as well as terms in the particular convention.[64] For example, Article 87(1) of the 1982 LOS Convention, which declares high seas freedoms, also says that "Freedom of the high seas is exercised under the conditions laid down by this Convention and by other rules of international law."[65] Four conclusions can be stated.

First, the overwhelming majority of commentators—including the International Law Commission, a U.N. General Assembly agency of international law experts[66]—have stated that the "other rules" clauses in the 1958 and 1982 LOS Conventions refer to the law of armed conflict,[67] a component of which is the law of naval warfare. Therefore, provisions such as Article 88 of the 1982 LOS Convention state a truism—*i.e.* that the high seas are reserved for peaceful purposes[68]—but high seas usage can be subject to the law of naval warfare, when Article 87(1)'s other rules clause is read with Article 88. As in the case of the 1958 conventions,

> That provision does not preclude . . . use of the high seas by naval forces. Their use for aggressive purposes, which would . . . violat[e] . . . Article 2(4) of the [U.N.] Charter . . . , is forbidden as well by Article 88 [of the Convention]. See also LOS Convention, Article 301, requiring parties, in exercising their rights and p[er]forming their duties under the Convention, to refrain from any threat or use of force in violation of the Charter.[69]

This analysis is buttressed by the Charter's trumping clause; no treaty can supersede the Charter.[70] Thus, the peaceful purposes language in Article 88 and other provisions of the Convention[71] cannot override Charter norms, such as those

in Article 2(4), but also those in Article 51, *i.e.* the "inherent right of individual and collective self-defense."[72]

Second, there is no indication that the LOS Convention drafters thought that the other rules clauses refer to anything else, and particularly to any customary law of the environment. International environmental law was a mere gleam in academics' and futurists' eyes when the 1958 LOS Conventions were signed, with only a patchwork of international agreements on the subject,[73] and there is no indication that the International Law Commission considered the issue. By contrast, there was an established body of law dealing with armed conflict situations, including naval warfare, at the time.

Third, other agreements dealing with protection of the maritime environment include clauses exempting, or partially exempting, their application during armed conflict or similar situations. Some speak of war,[74] others armed conflict or the need to protect vital national interests.[75] This includes the recently-ratified North American Free Trade Agreement.[76] This tends to confirm the view of applying the law of armed conflict as a separate body of law in appropriate situations. To the extent that treaties dealing with the maritime environment do not have such clauses,[77] such agreements must be read in the light of the LOS conventions, which include such provisions. And to the extent that the 1958 LOS conventions today recite customary norms—and such is the case with the High Seas Convention[78]—applying the laws of armed conflict (LOAC) as a separate body of law in appropriate situations as a customary norm must also be considered with LOAC treaties and other sources[79] when analyzing environmental issues in this context.

Fourth, principles of the law of treaties—*e.g.*, impossibility of performance,[80] fundamental change of circumstances,[81] or war, the last applying only to parties to a conflict[82]—may suspend operation of international agreements during a conflict or other emergency situation, or may terminate them. The outbreak of hostilities obviously does not suspend or terminate humanitarian conventions designed to apply in armed conflict.[83] The other side of the coin is the policy of *pacta sunt servanda*, *i.e.*, treaties should be observed,[84] and one manifestation of this principle is that States signing treaties should not behave so as to defeat their object and purpose.[85] The often-amorphous law of treaty succession[86] must be considered, particularly with respect to older agreements, including those stating the law of armed conflict, to the extent that such treaties are not part of customary law today.[87] If these agreements restate custom, and are subject to treaty succession principles with respect to a particular country, that country is doubly bound.[88]

The conclusion is inescapable that the other rules clauses of the 1958 Conventions—provisions that were carried forward into the 1982 LOS Convention—mean that the terms of the Conventions are subject to the law of armed conflict, of which the law of naval warfare is a part. Since the 1958 High

Seas Convention is generally regarded as a restatement of customary law, its other rules clauses are part of the customary norms governing oceans law during armed conflict.

C. The 1982 LOS Convention and the Maritime Environment

Although the Convention is prolix on the subject of the environment, the changes it proposes are neither great nor radical; it takes a holistic approach.[89] The core of marine environmental standards are in Part XII, which establishes for the first time a comprehensive legal framework for protecting and preserving the marine environment.[90] Other Convention provisions deal with environmental issues[91] in the context of specific ocean areas.

1. Part XII of the Convention

Part XII begins by declaring that "States have the obligation to protect and preserve the marine environment."[92] The Convention does not define "marine environment," but the negotiators generally understood that the atmosphere is included where relevant.[93] It also includes living resources, marine ecosystems and sea water quality.[94] The Convention defines "pollution of the marine environment"; it

> . . . means the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and the legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.[95]

The Convention also declares that States' "sovereign right to exploit their natural resources" pursuant to national environmental policies in, *e.g.*, the EEZ, is subject to a "duty to preserve and protect the marine environment"[96] against significant[97] damage.

States must act individually and jointly to prevent, reduce and control pollution of the marine environment from any source, using best practicable means at their disposal, in accordance with their capabilities. They must harmonize national policies, *i.e.*, national laws, with this requirement.[98] In doing so, they must ensure that they do not damage other States or their environment by pollution, or that pollution does not spread beyond their areas of sovereignty or control,[99] *e.g.*, the EEZ, as well as the territorial sea.[100] Required measures include those designed to minimize to the greatest possible extent releasing toxic, harmful or noxious substances, especially those that are persistent, from land-based sources, from or through the atmosphere or by dumping[101]; pollution from vessels, including accident prevention measures, dealing with emergencies, safety at sea, preventing discharges, and regulating design, construction, equipping, operating and

manning vessels; pollution from installations for exploring or exploiting natural resources of the seabed and subsoil; pollution from other installations operating in the marine environment.[102] In so acting, States must refrain from unjustifiable interference with other States' exercising their Convention rights and duties.[103] Measures taken must include those necessary to protect and preserve rare or fragile ecosystems and habitats of depleted, threatened or endangered species and other marine life.[104] In combatting pollution, States must not act to transfer damage or hazards from one area to another, or to transfer one type of pollution into another.[105] Technologies that alter or harm the environment, or introduce new or alien species that would significantly harm the environment must be avoided.[106] There are two distinct duties: avoiding use of harmful technologies, and "maintain[ing] the natural state of the marine environment," the latter an innovation in international law.[107]

The Convention requires environmental cooperation on global and regional bases.[108] Other provisions require cooperation in scientific research and in establishing scientific criteria for rules for pollution prevention, reduction and control.[109] States must also monitor, publish and assess the marine environment and provide scientific and technical assistance, with preference for developing States.[110] A State must notify other countries and competent international organizations (*e.g.*, the International Maritime Organization, IMO) of actual or imminent pollution damage to the environment.[111] Notification is a rule of customary international law.[112] Notice "also envisages that a notified State may wish to take preventive action to avert damage to itself."[113] States must jointly develop and promote contingency plans to combat pollution, cooperating with international organizations within limits of their capabilities.[114]

The Convention establishes standards for international rules and national laws to combat pollution.[115] States must adopt measures at least as effective as international rules and standards to prevent, reduce and control pollution from land-based sources; seabed activities, artificial islands and installations subject to "national jurisdiction;" the Area; and vessels of their registry or flag.[116] The phrase "national jurisdiction" includes internal waters, the territorial sea, the EEZ, the continental shelf and archipelagic waters.[117]

Similar principles govern ocean dumping.[118] Dumping in another State's territorial sea, EEZ or continental shelf waters requires the coastal State's express prior approval; it may regulate such dumping after consulting with other affected countries.[119]

Although some drafters thought that emergency fuel discharge from aircraft might not be an exception to prohibitions on ocean dumping without prior express approval, eventually the conclusion was that general international law allows such on *force majeure* or distress theories as an exception to treaty compliance.[120] What is true for aircraft is also true for ships; distress and *force majeure* theories are

recognized for innocent passage and straits transit passage regimes. Distress and *force majeure* can be valid claims during armed conflict situations, with different rules applying in relationships among States not party to a conflict, relationships between belligerents and States not party to a conflict, and relationships between belligerents.[121]

States must harmonize national policies at regional levels[122] and must work at the global level to establish rules, standards and recommended practices and procedures.[123]

2. Controlling Pollution and Protecting the Environment in Specific Ocean Areas

The 1982 Convention, Part XII, also recites standards related to specific ocean areas, *e.g.*, the territorial sea. In some cases, *e.g.* the contiguous zone, there is no reference in Part XII.

The Convention has special rules for controlling pollution from vessels in the territorial sea. States may publish special rules for foreign-flag ships' entry into port or internal waters, after due notice. These can be cooperative arrangements. States may adopt special rules for foreign-flag vessels within their territorial sea, including ships in innocent passage. However, no special rule can hamper innocent passage.[124]

These provisions are consistent with the Convention's navigational articles, which declare that passage is considered prejudicial to the coastal State's peace, good order or security if a foreign-flag ship "engages in . . . any act of wilful and serious pollution contrary to [the] Convention[,]" and which allows the coastal State to adopt regulations, "in conformity with . . . this Convention and other rules of international law, relating to innocent passage . . . in respect of . . . conservation of the living resources of the sea [and] . . . preservation of the environment of the coastal State and the prevention, reduction and control of pollution thereof . . ." with due notice of such rules. Foreign ships must comply with these rules.[125] Tankers, nuclear-powered ships and vessels carrying nuclear or other inherently dangerous or noxious substances or materials may be required to confine their passage to sea lanes established by the littoral State. These ships must also observe any special precautions stated in international agreements.[126] As in other circumstances, coastal States cannot hamper innocent passage except pursuant to the Convention. In applying regulations adopted in accordance with it, the practical effect cannot be to deny or impair innocent passage. There can be no discrimination in form or fact against any State's ships or against vessels carrying cargo to, from or for any State.[127]

However, coastal States may act to prevent breach of conditions attached to port calls or passage to internal waters. Moreover, they may temporarily suspend innocent passage in specific areas of their territorial sea if essential for protecting their security after duly published notice of a suspension.[128] While this might

arguably allow suspension for "environmental security" reasons, such is not the case. Repetition from the Territorial Sea Convention,[129] and the 1982 Convention's drafting history,[130] point to a different view. The right of temporary suspension balances between a coastal State's right to protect its territorial integrity through legitimate self-defense measures[131] and rights of navigation, etc., under the territorial sea innocent passage regime. How protecting a coastal State's environment fits into the analysis is a different issue.

The same territorial sea rules for criminal and civil jurisdiction, and for immunity of warships and other government ships operated for non-commercial purposes, also apply to environment-related claims. For example, warships that do not comply with valid coastal State environmental regulations can only be required to leave the territorial sea immediately. Flag States are responsible under international law for loss or damage caused by their warships or other noncommercial vessels.[132] The Convention's innocent passage rules, insofar as they concern environmental protection, are also subject to "other rules of international law," *i.e.*, the law of naval warfare.[133]

The Convention's innocent passage rules apply to straits for which innocent passage rights obtain and to archipelagic waters passage.[134] If a country qualifying as an archipelagic State declares archipelagic sea lanes and air routes and they are adopted by the appropriate international organization (*i.e.* IMO),[135] duties of ships and aircraft regarding the oceans environment, authorization for the archipelagic State to adopt laws, and the requirement that the right of passage shall not be hampered or suspended applicable to straits transit passage, attach to archipelagic sea lanes passage. A difference between straits innocent passage and archipelagic innocent passage, whether lanes have been declared or not, is that archipelagic States may suspend innocent passage for security reasons as under the territorial sea regime, while straits innocent passage is nonsuspendable.[136] Although coastal States may take appropriate enforcement measures against vessels "causing or threatening major damage" to the straits environment because they have violated navigational safety, maritime traffic or environmental laws while in transit passage (the regime for most straits), this does not apply to warships or other vessels entitled to sovereign immunity.[137]

Article 33 of the Convention, permitting a contiguous zone, does not specifically mention environmental protection. It allows declaration of such a zone, which, if no EEZ has been claimed, is a high seas area contiguous to the territorial sea but no wider than 24 miles from territorial sea baselines. The coastal State may exercise control in the zone to prevent infringement of its customs, fiscal, immigration or sanitary (*i.e.*, health or quarantine) laws and to punish violations committed within the territorial sea.[138] It is conceivable that environmental protection claims could be made with respect to health law enforcement, but this has not been the traditional view of the zone's purpose.[139]

Article 33 is tied to Article 303 of the Convention, which sets standards for archeological and historical objects found at sea.[140] "Found at sea" seems to have a more comprehensive scope than "found in the marine environment." Another problem with Article 303 is that there is no agreed definition of the terms "archaeological" and "historical."[141] Article 303 says that its terms are also "without prejudice to other international agreements and rules of international law regarding the protection of objects of an archaeological and historical nature,"[142] a variant on the "other rules" clauses that make the Convention subject to the law of armed conflict in appropriate situations.[143] In internal waters, the territorial sea and archipelagic waters, coastal State law governs as to artifacts found there; beyond, out to the Area, *i.e.*, the deep seabed beyond national jurisdiction or sovereignty, Article 303 controls but does not accord sovereign rights.[144] Objects found in the Area must be preserved or disposed of for the benefit of humankind, with "particular regard" for the State of origin,[145] if that can be determined.

Consistent with the Convention's navigational articles,[146] as in the case of the territorial sea, coastal States may adopt special laws for their EEZs.[147] Although there is no explicit cross-reference to Convention continental shelf principles in this Part XII provision, clearly the coastal State has the same kind of environmental rights and responsibilities with regard to activities on its continental shelf where shelf sovereignty has been declared with no claim for an EEZ.[148] For both the EEZ and the continental shelf, coastal States must have due regard for other oceans users' high seas rights, including navigation and overflight.[149] Both are subject to sovereign immunity exceptions for, *e.g.*, warships, and the "other rules of international law" principle, in connection with coastal State environmental regulation.[150]

Provisions allowing coastal State regulation of pollution from vessels in the territorial sea, the EEZ and above the continental shelf are considered an "innovation for the general law of the sea," which usually has looked to flag or registry States to control pollution from ships.[151] Whether considered *lex lata* or *de lege ferenda* today, these innovative provisions are subject to qualifications: there must be a balance of due regard for others' high seas rights, *e.g.*, freedoms of navigation or overflight; warships and other non-commercial vessels retain sovereign immunity; and any attempt at environmental regulation of these sea areas is subject to law of armed conflict principles in appropriate situations through the "other rules" clauses.

The 1982 Convention also provides for enforcing environmental standards. States must adopt laws implementing international norms for land-based pollution, pollution from seabed activities, ocean dumping, and through or from the atmosphere.[152] The pollution hazard must be significant.[153]

States in whose port a vessel, suspected of polluting that State's internal or territorial waters or EEZ, in violation of international standards, is located, may investigate, detain or begin enforcement against that ship. These rights are subject to, *e.g.*, notice to the flag or registry State, nondiscriminatory enforcement, and enforcement only through State vessels, *e.g.*, warships or vessels on authorized government service.[154] Enforcing States may not endanger safety of navigation or create a hazard to an accused vessel, bring it to an unsafe port or anchorage, or expose the marine environment to "an unreasonable risk."[155] A detaining State is liable for unlawful enforcement measures, excessive "in the light of available information" at the time.[156] The Convention also provides in Article 221 that

> 1. Nothing . . . prejudice[s] the right of States, pursuant to international law, both customary and conventional, to take and enforce measures beyond the territorial sea proportionate to the actual or threatened damage to protect their coastline or related interests, including fishing, from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences.
>
> 2. . . . "[M]aritime casualty" means a collision of vessels, stranding or other incident of navigation, or other occurrence on board a vessel or external to it resulting in material damage or imminent threat of material damage to a vessel or cargo.

Measures to be taken under Art. 221(1) include destruction of the vessel. These provisions, found in other widely-accepted pollution prevention conventions,[157] may be close to acceptance as customary international law, if such is not already the case.[158] Such a right of intervention would have justified Persian Gulf countries' acting to prevent oil pollution damage from the attacks on oil terminal facilities or vessels during the Tanker War,[159] assuming there was a threat within the Convention definition, and that the leakage resulting from the attacks was a "casualty" within the meaning of Article 221(2), *i.e.*, an "occurrence on board a vessel or external to it resulting in, or imminent threat, of material damage to a vessel or cargo." The provisions may not have applied to Iran and Iraq in that war because of the "other rules" clauses of the LOS Conventions, applicable at least as customary law,[160] but as between Persian Gulf States not party to the conflict and either belligerent, or as between States not party to the war, the law of the sea applied in this context. Since U.N. Security Council resolutions at least theoretically involved all countries around the Gulf during the 1990-91 conflict, LOS principles allowing intervention may have gone by the boards because of the other rules clauses as to the Iraq-initiated spill from the Kuwaiti port.[161] To the extent that Article 221 would apply as a customary norm, it supplied additional justification for Coalition attacks to stop the discharge.

In the context of the Convention's enforcement provisions, here too warships, naval auxiliaries and other vessels or aircraft on government non-commercial

service may not be detained and have sovereign immunity; this is qualified by requiring flag States to ensure, by adopting "appropriate measures" not impairing operations or operational capabilities of such ships or aircraft, that they operate consistently, so far as is reasonable and practicable, with the Convention. This policy repeats other Convention immunity rules except for the "appropriate measures" qualification.[162] It

> . . . acknowledges that military vessels and aircraft are unique platforms not always adaptable to conventional environmental technologies and equipment because of weight and space limitations, harsh operating conditions, the requirements of long-term sustainability, or other security considerations. . . . [S]ecurity needs may limit compliance with disclosure requirements.[163]

Some regional environmental protection agreements either omit[164] a declaration of the customary immunity rule or do not append the 1982 LOS Convention's limitations and requirements for appropriate measures. The Kuwait Regional Convention and the Red Sea Convention are examples of the latter.[165] To the extent that the Convention binds treaty partners in a given context, those treaties must be considered modified to that extent.[166] To the extent that the LOS Convention restates customary law, the longstanding principle of warship and naval auxiliary immunity[167] is a powerful factor for its application in these contexts as well.

Other divisions of the 1982 LOS Convention providing for environmental protection independently of Part XII include those dealing with vessel accidents on the high seas, high seas fishing, and the Area, also a part of the high seas, and marine scientific research. The Convention's high seas fishing provisions follow in part those of the 1958 conventions, but rules for the Area are unique to the 1982 Convention. Because there has been little technology capable of exploiting that part of the ocean, and because the Convention has only recently come into force, these provisions are presently largely theoretical in nature. Nevertheless, they are likely to have impact in the next century, and many restate concepts in other ocean areas regulated by the Convention.

The Convention requires more of flag States as to ships under their registry and operating on the high seas. Flag States must ensure "that the master, officers and, to the extent appropriate, the crew are fully conversant with and required to observe the applicable international regulations concerning . . . prevention, reduction and control of marine pollution. . . ."[168] The Convention also requires States to "cause an inquiry to be held . . . into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing [*inter alia*] . . . serious damage . . . to the marine environment. The flag State and the other State shall co-operate in the conduct of any inquiry . . . into any such marine casualty or incident of navigation."[169]

There is a duty among States bordering semi-enclosed areas, *i.e.*, a gulf or other body surrounded by two or more States and connected to another sea or the ocean by a narrow outlet, such as the Persian Gulf, to coordinate managing, conserving, exploring and exploiting oceanic living resources, and to coordinate implementing their rights and duties as to protecting and preserving the marine environment.[170]

Marine scientific research is recognized as a high seas right in the 1982 Convention,[171] but such operations must be conducted in compliance with relevant regulations adopted in conformity with the Convention including those protecting and preserving the marine environment.[172]

Although high seas fisherfolk retain the traditional freedom to seek their catch,[173] the Convention seines in that right to a certain extent, as it has been under earlier treaties and practice. It "has never been an unfettered right."[174] The Convention explicitly subjects high seas fishing rights to limiting treaties, and to cooperation in achieving agreements, as well as rules it sets for certain fish stocks and on conserving high seas living resources.[175] To the extent that these treaties impose environmental controls, the high seas freedom to fish is curtailed. The same is true for conservation measures imposed by coastal States or agreements.

Although the Convention imposes a due regard formula on concurrent exercise of high seas freedoms such as navigation, overflight and fishing,[176] this formula does not apply to environmental concerns.[177] The only indirect exception is the due regard requirement for Area activities,[178] which might include environmental controls.

The Area—defined as the seabed, ocean floor and subsoil beyond national jurisdictional limits[179]—and its resources are declared the common heritage of humankind.[180] National jurisdiction means, *inter alia*, a declared EEZ or continental shelf. The legal status of the water column or airspace above the Area is not affected by Convention provisions dealing with it.[181] Area governance is vested in an Authority,[182] which must adopt rules and procedures for preventing, reducing and controlling pollution and other hazards to the marine environment, including coastlines, interfering with the ecological balance of that environment, with particular attention being paid to protection from harmful effects of activities such as drilling, dredging, excavation, waste disposal, building and operating or maintaining installations, pipelines and other devices. These rules must also protect and conserve Area natural resources and prevent damage to flora and fauna of the marine environment. The Authority must take necessary measures, which may supplement existing treaties, to protect human life, in connection with Area operations.[183] There is also an obligation to preserve objects of an archaeological and historical nature found in the Area, with particular regard paid to preferential rights of a State or country of origin, and which incorporates by reference other rules of law and agreements dealing with artifacts protection.[184] The Convention also requires that Area activities be undertaken " with reasonable regard for other

activities in the marine environment." Area installations, like those in the EEZ and on the continental shelf, *inter alia* must not be established "where interference may be caused to the use of recognized sea lanes essential to international navigation or in areas of intense fishing activity.... Other activities in the marine environment shall be conducted with reasonable regard for activities in the Area."[185]

Convention provisions for the Area include an "other rules of international law" clause:

> The general conduct of States in relation to the Area shall be in accordance with the provisions of this Part [XI], the principles embodied in the [U.N.] Charter . . . and other rules of international law in the interests of maintaining peace and security and promoting international co-operation and mutual understanding.[186]

As in the case of the high seas generally, the Convention declares that the Area shall only be used for peaceful purposes.[187] The same interpretations should obtain for application of these articles as analyzed under other parts of the 1982 Convention and its 1958 antecedents.[188] "Other rules" means the law of armed conflict may be applied in certain contexts. The "peaceful purposes" provision means that no State can take any action, *e.g., aggression, in violation of the Charter. Peaceful activities under Area rules include military activities, e.g.,* naval task force operations.[189]

3. Regional Agreements, the 1982 LOS Convention, and the Law of Armed Conflict at Sea

The Kuwait Regional Convention, to which all Persian Gulf countries are party, including Iran and Iraq, covers the entire Gulf, except for bordering States' internal waters. Similarly, the Red Sea Convention's geographic sweep includes that body and the Gulf of Aden, again excepting bordering States' internal waters.[190] Both define "marine pollution" in nearly identical terms as

> introduction by man, directly or indirectly, of substances or energy into the marine environment resulting or likely to result in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of [the] quality of use for use of [the] sea and reduction of amenities[.][191]

Parties pledge cooperation to prevent, abate and combat pollution of the marine environment in the Gulf or the Red Sea, whether caused by ships, dumping from ships or aircraft, from exploring and exploiting the territorial sea and its subsoil and the continental shelf, or land reclamation activities.[192] The Conventions' Protocols amplify this pledge.[193] The latter include broad definitions of "marine emergency" to trigger application; it means

> . . . any casualty, incident, occurrence or situation, however caused, resulting in substantial pollution or imminent threat of substantial pollution to the marine environment by oil or other harmful substances and includes, *inter alia*, collisions, strandings and other incidents involving ships, including tankers, blow-outs arising from petroleum drilling and production activities, and the presence of oil or other harmful substances arising from the failure of industrial installations[.][194]

These Conventions and Protocols do not explicitly provide for anticipatory self-defense against imminent pollution threats, as does the 1982 LOS Convention.[195] However, the Protocols appear to contemplate such by allowing "every appropriate measure to combat pollution and/or to rectify the situation," provided that other countries are notified[196] of emergency responses, defined as "any activity intended to prevent, mitigate or eliminate pollution by oil or other harmful substances or threat of such pollution resulting from marine emergencies."[197] This broad grant of authority must be tempered by the limitations of proportionality, etc., stated in the 1982 Convention.[198] This Convention language further justifies, subject to notice and proportionality principles, the concept of anticipatory reaction to imminent threat. And if this be so, might such be further support for the concept of anticipatory self-defense?[199]

These regional treaties had applications during the Tanker War and the 1990-91 conflict. The Red Sea Convention and Protocol did not apply to the 1980-88 war, except as being supportive of common principles in the Kuwait Convention and Protocol, which did apply, geographically,[200] to the Persian Gulf.

There were two belligerents in the Tanker War, Iran and Iraq. The Kuwait Convention and its Protocol could not have applied *per se* as between them, either because of application of the other rules principles of the law of the sea,[201] or because of law of treaties principles such as impossibility of performance, fundamental change of circumstances or armed conflict between them, all of which are grounds for suspending international agreements.[202] However, except insofar as the latter grounds would apply as between belligerents and other Gulf States party to the Convention and its Protocol, their pledges to prevent, abate and combat pollution[203] of the marine environment remained in force. To the extent that the agreements' terms restated customary norms,[204] these too remained in force.

Given the completion of the LOS Convention, its clauses paramount and its terms, virtually identical with those of the Kuwait Convention and its Protocol, together with terms of other treaties around the world that were virtually identical with the Convention and the Protocol by 1982, there was at least a developing customary norm, and perhaps a customary rule, alongside treaty principles stated in the Kuwait Convention and its Protocol, by 1982.[205] If this is so, the belligerents were obliged not to act so as to pollute, or act to cause an imminent threat, to other Gulf States' interests, and to interests of other countries using Gulf waters for

freedom of navigation through actions such as attacks on the Nowruz and other terminal facilities[206] when the result at the time of decision was likely to be a substantial spill.[207] Under the Kuwait Convention, Iran was arguably within its rights to ask for an opportunity to stop the outflow.[208] For the same reasons, there may have been violations of the Convention and the Protocol with respect to spillage resulting from Iraqi and Iranian attacks on shipping during the war,[209] if such could have been foreseen to have resulted in substantial risk to other States' environmental interests, and such risks occurred. The record is less than clear on this point.[210]

With respect to the 1990-91 conflict, the analysis is different. First, Iraq could claim suspension of the Convention and its Protocol under the law of treaties.[211] Second, it could be argued that U.N. Security Council resolutions superseded the Convention and its Protocol because of the supremacy of Charter-based law in actions on the environment and in authorizing all necessary means to eject Iraq from Kuwait.[212] To the extent that customary law was embodied in these treaties and such customary law survived in the face of Council action under the Charter,[213] Iraq clearly violated these norms in its deliberate spillage of oil into the Gulf to foil a projected Coalition amphibious attack.[214]

Since Coalition naval operations extended into the Red Sea as well as the Persian Gulf,[215] there was the potential of application of the Red Sea Convention and its Protocol as to treaty parties such as Saudi Arabia and Jordan.[216] If the two Conventions and Protocols, together with the 1982 LOS Convention, could be said to state customary norms that survived Council action under the Charter, there was a potential for violation by Coalition naval forces. The record is void as to both Red Sea and Gulf operations, and it is highly likely that there were no violations of customary norms by the Coalition in either theater.

4. The Convention and the Law of the Maritime Environment

This summary of Convention terms for protecting the marine environment demonstrates that Part XII and those terms included in other parts of the treaty are indeed prolix and comprehensive and there is little that is new law or unanticipated. Indeed, provisions related to the environment in many cases repeat principles seen in other contexts: the concept of "due regard" where there are two or more oceans uses at stake[217]; confirmation of the sovereign immunity of warships, naval auxiliaries and other government vessels on non-commercial service and State aircraft[218]; confirmation of application of the law of armed conflict in the context of environmental protection through application of other rules clauses, which do not include customary law of the environment as part of "other rules"[219]; the same usage of "peaceful purposes" language in connection with the Area as on the high seas generally.[220] Approval of the use of anticipatory self-defense against an environmental threat, previously stated in earlier treaties,

is some precedent for the concept of anticipatory self-defense in the context of the inherent right to self-defense mentioned in the Charter.[221]

Other Persian Gulf States could possibly have asserted claims during the Tanker War if the belligerents' attacks on Gulf shipping caused slicks that threatened their interests, or if the attacks on the oil terminals, including that on Nowruz in 1983, raised the same threat.[222] A similar analysis obtains for the Kuwait Convention and its Protocol.[223]

Whether the deliberate flood by Iraq during the 1990-91 conflict could have been a predicate for similar claims depends on whether the law of the sea was superseded by the law of the Charter, and particularly the effect of U.N. Security Council decisions.[224] A similar analysis would obtain under the regional conventions.[225] Although there was the potential for applying the same law to Coalition operations, there is no indication that there were violations by Coalition naval forces.[226]

Apparently these issues were not advanced in either war, but as the Convention is accepted by more States, either as treaty law or as customary norms, these claims may be raised in the future, particularly if the Convention is buttressed by similar terms in regional and bilateral agreements, although the Convention's norms trump any to the contrary in these treaties.[227]

This cursory review of a complex body of law raises the double question of the relationship between the law of the maritime environment and the general law of the sea, perhaps under a "due regard" analysis, and the relationship between the law of the environment and the law of armed conflict, perhaps also on a "due regard" basis. This is complicated by the Convention's placement of some environmental norms within Part XII, the general standards, and its sprinkling others throughout the treaty.[228] How do these bodies of law—the law of the maritime environment, the general law of the sea, and the law of armed conflict—interrelate? The Convention gives no clear answer on this issue.

III. GENERAL CONCLUSIONS

If the 1982 LOS Convention is a "constitution" for the law of the sea where the law of armed conflict is not involved, its provisions for protecting the marine environment could be said to be a seagoing "bill of rights" for the environment. Treaties varying from Convention environmental protection provisions are subject to the Convention's terms for those States that are party to it.[229] Custom may compete with the Convention in the future, and *jus cogens* and U.N. Charter norms may supersede part of it as well.[230]

Customary norms, first codified in the 1958 LOS Conventions, confirming sovereign immunity for warships, naval auxiliaries and other vessels on government non-commercial service and State aircraft, are affirmed in the 1982 Convention and have been repeated in regional agreements.[231] Similarly,

recognition of the law of armed conflict and its component, the law of naval warfare, as applicable in certain situations, is confirmed in the Convention's navigational articles and its environmental provisions.[232] The principle of "due regard" for competing oceans uses, particularly on the high seas, has been carried forward into the 1982 Convention.[233]

What is new is a complex, prolix protection for the maritime environment. The fundamental issue has become the relationship of this relatively new body of law with the general law of the sea and the law of armed conflict.

Notes

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1. Elmer-Dewitt, *A Man-Made Hell on Earth*, Time, Mar. 18, 1991, at 36.

2. For other accounts, which in most cases rely on contemporaneous media reports, of assaults on the environment during the 1990-91 conflict, *see generally* U.S. DEPARTMENT OF DEFENSE, FINAL REPORT TO CONGRESS: CONDUCT OF THE PERSIAN GULF WAR 147, 624-25 (1992) [hereinafter DOD REPORT]; Edwards, *The Iraqi Oil "Weapon" in the 1991 Gulf War: A Law of Armed Conflict Analysis*, 40 Nav. L. Rev. 105, 108-10 (1991); Leibler, *Deliberate Wartime Environmental Damage: New Challenges for International Law*, 23 Cal. W. Int'l L.J. 67-68 (1992); Low & Hodgkinson, *Compensation for Wartime Environmental Damage: Challenges to International Law After the Gulf War*, 35 Va. J. Int'l L. 405, 410-12 (1995); Okorodudu-Fubara, *Oil in the Persian Gulf War: Legal Appraisal of an Environmental Disaster*, 23 St. Mary's L.J. 123, 129 (1991); Lijnzaad & Tanja, *Protection of the Environment in Times of Armed Conflict: The Iraq-Kuwait War*, 1993 Neth. Int'l L. Rev. 169, 170-71; Plant, *Introduction*, in ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A "FIFTH" GENEVA CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TME OF ARMED CONFLICT (Plant ed. 1992) at 3 [hereinafter ENVIRONMENTAL PROTECTION]; Roberts, *Environmental Destruction in the 1991 Gulf War*, 32 Int'l R. Red Cross 538, 540-49 (1992); Salter, *Environmental Legal Issues Arising from the Gulf Conflict*, 8 Oil & Gas L. & Tax. Rev. 348, (1990); Sharp, *The Effective Deterrence of Environmental Damage During Armed Conflict: A Case Analysis of the Persian Gulf War*, 137 Mil. L. Rev. 1, 40-41 (1992); Zedalis, *Burning of the Kuwaiti Oilfields and the Laws of War*, 24 Vand. J. Transnat'l L. 711, 713 (1991); Edgerton, Comment, *Eco-Terrorist Acts During the Persian Gulf War: Is International Law Sufficient to Hold Iraq Liable?*, 22 Ga. J. Int'l & Comp. L. 151, 153 (1992).

3. *See* Roberts, *Environmental Issues in International Armed Conflict: The Experience of the Gulf War*, Chap. XIV, *infra*.

4. Walker, *State Practice Following World War II, 1945-1990*, *in* TARGETING ENEMY MERCHANT SHIPPING 121,159 (Nav. War C. Int'l L. Stud., v. 65, Grunawalt ed. 1993) at 121, 159; Okorodudu-Fubara, *supra* n. 2, at 129; Salter, *supra* n. 2 at 349, estimates the leakage was 30,000 tons of crude oil per day, considerably more than the summary of media accounts.

5. Walker, *supra* n. 4, at 158.

6. *Id.* at 161; *Chronology 1986*, 65 Foreign Aff. 653, 672-76 (1987).

7. Walker, *supra* n. 4, at 165; HAYES, NAVAL RULES OF ENGAGEMENT: MANAGEMENT TOOLS FOR CRISIS (1989) 48-49; McNeill, *Neutral Rights and Maritime Sanctions: The Effects of Two Wars*, 31 Va. J. Int'l L. 631, 638-39 (1991); Peace, *Remarks*, in Panel, *Neutrality, the Rights of Shipping and the Use of Force in the Persian Gulf War (Part I)*, 1988 Proc. Am. Soc'y Int'l L. 148, 152 (1990); Peace, *Major Maritime Events in the Persian Gulf Between 1984 and 1991: A Juridical Analysis*, 31 Va. J. Int'l L. 545, 557-58 (1991); N.Y. Times, Oct. 20, 1987, at A10; *see also* letter of President Reagan to House Speaker Wright, Oct. 20, 1987, 23 Weekly Comp. of Pres. Docs. 1206 (1987).

8. Walker, *supra* n. 4, at 159-66, citing *inter alia* Fenrick, *The Military Objective and the Principle of Distinction in the Law of Naval Warfare*, *in* BOCHUMER SCHRIFTEN ZUR FRIEDENSSICHERUNG UND ZUM HUMANITAREN VOLKERRECHT (Heinegg ed., v. 7, 1991) at 1,20; *see also* Fenrick, *Legal Aspects of Targeting in the Law of Naval Warfare*, 1991 Can. Y.B. Int'l L. 238, 260.

9. Over 200 merchant mariners died. Hoffman, *Neutral Mariners and Humanitarian Law: A Precedent for Protecting Neutrals in Armed Conflict*, 1992 Int'l Rev. Red Cross 274, 285-86; Russo, *Neutrality at Sea in Transition: State Practice in the Gulf War as Emerging International Customary Law*, 19 Ocean Devel. & Int'l L. 381, 397 (1988); *see also* Wiswall, *Remarks*, *in* Panel, *Neutrality, the Rights of Shipping and the Use of Force in the Persian Gulf War (Part II)*, 1988 Proc. Am. Soc'y Int'l L. 594-95 (1990); Wiswall, *Neutrality, the Rights of Shipping and the Use of Force in the Persian Gulf*, 31 Va. J. Int'l L. 619, 621 (1991).

10. *See generally Iraqi Symposium*, 15 S. Ill. L.J. 411 (1991); Schachter, *United Nations Law in the Gulf Conflict*, 85 A.J.I.L. 452 (1991); Walker, *The Crisis Over Kuwait, August 1990-February 1991*, in *Symposium on International Law and the Rules of War: The Crisis Over Kuwait*, 1991 Duke J. Comp. & Int'l L. 1, 25, 29-40.

11. DOD REPORT, *supra* n. 2, at 624-25; MOORE, CRISIS IN THE GULF: ENFORCING THE RULE OF LAW (1992) at 78-79; Edgerton, *supra* n. 2, at 152; Edwards, *supra* n. 2, at 105-08; Lijnzaad & Tanja, *supra* n. 2, at 170; Low & Hodgkinson, *supra* n. 2; Okorodudu-Fubara, *supra* n. 2, at 129-30, 132-36; Plant, *Introduction*, in ENVIRONMENTAL PROTECTION, *supra*, n. 2, at 3; Plant, *Legal Aspects of Marine Pollution During the Gulf War*, 7 Int'l J. Estuarine & Coastal Law 217-18 (1992) [hereinafter *Legal Aspects*]; Sharp, *supra* n. 2, at 41-42; Zedalis, *supra* n. 2, at 713. Iraq's shelling Saudi Arabia's Khafji oil facilities in late January 1991 resulted in leakage into the Gulf on Saudi Arabia's north coast; this has been characterized as collateral damage. Plant, *supra* at 218.

12. *See generally* FRIEDMAN, DESERT VICTORY: THE WAR FOR KUWAIT (1991) ch. 4; Walker, *supra* n. 10, at 35-36.

13. FRIEDMAN, *supra* n. 12, at 209, 211-13, 361-64; MELIA, "DAMN THE TORPEDOES": A SHORT HISTORY OF U.S. NAVAL MINE COUNTERMEASURES, 1777-1991, (1991) at 127-32.

14. Iraq arguably believed that smoke from oil fires, and perhaps heat and light from them, would confuse Coalition fire control systems and would blind Coalition pilots and gunners. The oil slick may have been designed to impede or stop an amphibious assault by naval and marine forces on beaches near Kuwait City. There was also the possibility that the oil would clog desalination plants in Saudi Arabia and thereby deprive the civil population and Coalition forces of water supply. Although some Coalition weapons systems were affected, the oil fires were not a major problem, the threatened amphibious assault was a Coalition ruse to pin down Iraqi defenders. The flooding may have been Iraqi retaliation to Coalition air strikes against the homeland. DOD REPORT, *supra* n. 2, at 147, 624-25; Edgerton, *supra* n. 2, at 132-33; Edwards, *supra* n. 2, at 117; Leibler, *supra* n. 2, at 127-28; Low & Hodgkinson, *supra* n. 2; Okorodudu-Fubara, *supra* n. 2, at 129-32; Plant, *Legal Aspects*, *supra* n. 11, at 223, noting that Iraq might claim that its action had a military objective.

15. *See generally* Leibler, *supra* n. 2, at 127-28; Okorodudu-Fubara, *supra* n. 2, at 132-41; Edgerton, *supra* n. 2, at 152-54.

16. Leibler, *supra* n. 2, at 126-27.

17. Okorodudu-Fubara, *supra* n. 2, at 138.

18. *See* Walker, *supra* n. 4, at 166. Few if any merchant ships were hit by hostile fire during the 1990-91 war; a couple of Coalition warships were mined, and Iraqi maritime forces, including captured Kuwaiti assets, were sunk. *See generally* DOD REPORT, *supra* n. 2, at 97, 157, 188-90, 193-96, 199-208; MELIA, *supra* n. 13, at 128-29.

19. 2 O'CONNELL, THE INTERNATIONAL LAW OF THE SEA (Shearer ed. 1984) at 984.

20. In 1926, the Preliminary Conference on Oil Pollution of Navigational Waters produced a Draft Convention, *reprinted in* 1 FOREIGN REL. OF THE U.S.: 1926, at 238, 245 (1941). No government signed it, but some shipowners signed a "gentleman's agreement" not to discharge oily water within 50 miles of a coast. The draft convention became the basis for the Convention for Prevention of Pollution of the Sea by Oil, May 12, 1954, 12 U.S.T. 2989, 327 U.N.T.S. 3 [hereinafter 1954 Oil Pollution Convention], amended Apr. 11, 1962, 17 *id.* 1523, 600 U.N.T.S. 332, Oct. 21, 1969, 28 *id.* 1205, Oct. 12, 1971, *reprinted in* 2 WALLACE, THE MARINE MAMMAL COMMISSION COMPENDIUM OF SELECTED TREATIES, INTERNATIONAL AGREEMENTS, AND OTHER RELEVANT DOCUMENTS ON MARINE RESOURCES, WILDLIFE, AND THE ENVIRONMENT (1994) at 1693; Oct. 15, 1971, *reprinted in id.* 1695. COLOMBOS, THE INTERNATIONAL LAW OF THE SEA (6th rev. ed. 1967) at Sec. 445; 4 NORDQUIST ET AL., UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY (1991) at 4. Environmental warfare is equally old. *See* Okorodudu-Fubara, *supra* n. 2, at 142-43.

21. Convention for Safety of Life at Sea, Jan. 20, 1914, 219 Consol. T.S. 177 [hereinafter 1914 SOLAS].

22. *E.g.* Convention on Civil Liability for Oil Pollution Damage, Nov. 29, 1969, [hereinafter Civil Liability Convention], 973 U.N.T.S. 3, supplemented by Protocol, Nov. 19, 1976, *reprinted in* 16 I.L.M.617 (1977), a response to the 1967 *Torrey Canyon* grounding. Healy, *The C.M.I. and IMCO Draft Conventions on Civil Liability for Oil Pollution*, 1 J. Mar. L. & Com. 93 (1969). The Convention, *supra*, was modified by a Protocol of May 25, 1984, *reprinted in* 6 BENEDICT ON ADMIRALTY (7th ed. rev., Wiswall ed. 1995), Doc. 6A and a Protocol of Nov. 27, 1992, *reprinted in id.*, Doc. 6B; neither are in force for the United States. The Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, Nov. 29, 1969, 26 U.S.T. 765, 970 U.N.T.S. 212 [hereinafter 1969 Intervention Convention], also was a response to *Torrey Canyon*; it has been amended by the Protocol Relating to Intervention on the High Steas in Cases of Marine Pollution by Substances Other than Oil, Nov. 2, 1973, T.I.A.S. No. 10561, *reprinted in* 13 I.L.M. 605 (1973) [hereinafter 1973 Intervention Protocol]. The Intervention on the High Seas Act, 33 U.S.C. §§ 1471-78 (1994) implements the Convention and its Protocol. *See also* 2 O'CONNELL, *supra* n. 19, at 1006-07; SCHOENBAUM, ADMIRALTY AND MARITIME LAW (2d ed. 1994) § 16-1 at 825.

23. In 1970, however, Richard A. Falk, told a Naval War College audience that the *Torrey Canyon* spill was the "Hiroshima" of the Ecological Age. *See* Falk, *New Trends in International Law: The Challenges of the Ecological Age*, Nav. War C. Rev. 18, 21 (1970).

24. Convention on Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333; 1108 U.N.T.S. 152 [hereinafter ENMOD Convention].

25. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to Protection of Victims of International Armed Conflicts, June 8, 1977, 1125 U.N.T.S. 3; *see also* Protocol Additional to Geneva Conventions of 12 August 1949, and Relating to Protection of Victims of Non-International Armed Conflicts, June 8, 1977, *id.* 609. Although the United States is likely to ratify Additional Protocol II, the Reagan Administration had serious reservations concerning Additional Protocol I and did not seek U.S. Senate advice and consent for it. Letter of Transmittal from President Reagan to the U.S. Senate, Jan. 29, 1987; Letter of Submittal from Secretary of State Shultz to President Reagan, Dec. 13, 1986, in Message from the President of the United States Transmitting the Protocol II Additional to the Geneva Conventions of August 12, 1949, and Relating to the Protection of Victims of Noninternational Armed Conflicts, Concluded at Geneva on June 10, 1977, S. Treaty Doc. No. 100-2, 100th Cong., 1st Sess. (1987), *reprinted in* 26 I.L.M. 561 (1987). Many Additional Protocol I signatories filed declarations or reservations.

26. Convention for Amelioration of the Condition of Wounded and Sick in Armed Forces in the Field, Aug. 12, 1949, 6 U.S.T. 3114; 75 U.N.T.S. 31; Convention for Amelioration of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, Aug. 12, 1949, *id.* 3217; 75 U.N.T.S. 85 [hereinafter Second Geneva Convention]; Convention Relative to Treatment of Prisoners of War, Aug. 12, 1949, *id.* 3316; 75 U.N.T.S. 135; Convention Relative to Protection of Civilian Persons in Time of War, Aug. 12, 1949, *id.* 3516; 75 U.N.T.S. 287 [hereinafter Fourth Convention], provisions of which bear, directly or indirectly, on environmental issues during armed conflict.

27. U.N. S.C. Res. 687, U.N. Doc. S/RES/687 (1991), *reprinted in* 30 I.L.M.846 (1991); U.N. General Assembly Resolution 47/37 (1992) also declared that existing international law prohibits environmental damage and depletion of natural resources, *e.g.* destruction of oil wells and releasing oil into the sea as occurred during the 1990-91 war.

28. *See generally* BIRNIE & BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT (1994) at 128; Diederich, *"Law of War" and Ecology - A Proposal for a Workable Approach to Protecting the Environment Through the Law of War*, 136 Mil. L. Rev. 137, 160 (1992); Lijnzaad & Tanja, *supra* n. 2, at 189-200; Morris, *Protection of the Environment in Wartime: The United Nations General Assembly Considers the Need for a New Convention*, 27 Int'l Law. 775 (1993); Sharp, *supra* n. 2, at 3; Plant, *Elements of a "Fifth Geneva" Convention on the Protection of the Environment in Time of Armed Conflict*, in ENVIRONMENTAL PROTECTION, supra n. 2, at 37; Plant, *Government Proposals and Future Prospects*, in *id.* 170; Plant, *Legal Aspects*, *supra* n. 11, at 229-31; Plant, *Responses to the London Conference and the Ottawa Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, 10-12 July 1991*, in ENVIRONMENTAL PROTECTION, *supra* at 161; Terry, *The Environment and the Laws of War: The Impact of Desert Storm*, 45 Nav. War C. Rev. 60, 65 (1992).

29. U.N.G.A. Res. 47/37, *supra* n. 27; Morris, *supra* n. 28, at 780.

30. GROUP OF INTERNATIONAL LAWYERS & NAVAL EXPERTS, SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA (Doswald-Beck ed.1995) [hereinafter San Remo Manual], analyzed by Doswald-Beck, *The San Remo Manual on International Law Applicable to Armed Conflicts at Sea*, 89 A. J. I. L. 192 (1995), the first compilation of the law of naval warfare since the London Declaration Concerning the Laws of Naval War, Feb. 26, 1909 [hereinafter London Declaration], *reprinted in* THE LAW OF NAVAL WARFARE: A COLLECTION OF AGREEMENTS AND DOCUMENTS WITH COMMENTARIES (Ronzitti ed. 1988) at 223 [hereinafter LAW OF NAVAL WARFARE], an unratified multilateral treaty, and Institut de Droit International, *Oxford Manual of Naval War* (1913) [hereafter Oxford Manual], *reprinted in* LAW OF NAVAL WARFARE, *supra* at 277. When World War I began, France and Russia tried to comply with the Declaration; Germany and Austria-Hungary adopted parts; the United Kingdom adopted it with additions and modifications, which were imitated by France, Italy and Russia. The Declaration became a propaganda issue and after further modifications was withdrawn in 1916. The United Kingdom explained that it was returning to the historic and admitted rules of the law of nations. 2 O'CONNELL, *supra* n. 19, at 1104; *see also* COLOMBOS, *supra* n. 20, §§ 503-06. Today, the Declaration is considered to be a mixed bag of accepted rules, plus principles no longer relevant, in modern sea warfare. STONE, LEGAL CONTROLS OF INTERNATIONAL CONFLICT (2d ed. 1959) at 109; Kalshoven, *Commentary*, in LAW OF NAVAL WARFARE, *supra* at 257, 273-74. Nor did the Oxford Manual achieve its goal of restating the rules. Verri, *Commentary*, in *id.* at 329, 340. Before and after these publications, naval powers have published compilations that have received acceptance by commentators, albeit with differing views on some points. *See, e.g., U.S. Department of the Navy, Commander's Handbook on the Law of Naval Operations*, NWP 9 (Rev. A)/FMFM 1-10 [hereafter NWP 9 (Rev. A)], analyzed in THE LAW OF NAVAL OPERATIONS (Nav. War C. Int'l L. Stud., v. 64, Robertson ed. 1991). Sources such as the Declaration, the Oxford Manual, the San Remo Manual and NWP 9A, can strengthen the authority of custom or general principles and are secondary sources in any event. I.C.J. Statute, Art. 38(1); RESTATEMENT OF FOREIGN RELATIONS LAW OF THE UNITED STATES secs. 102-03 (1987) [hereinafter Restatement (Third)]; BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW (4th ed. 1990) at 5.

31. Convention on the Continental Shelf, Apr. 29, 1958 [hereinafter Continental Shelf Convention], 15 U.S.T. 471, 499 U.N.T.S. 311; Convention on the High Seas [hereinafter High Seas Convention], Apr. 29, 1958, 13 *id.* 2312; 450 U.N.T.S. 82; Convention on Fisheries and Conservation of the Living Resources of the High Seas, Apr. 29, 1958 [hereinafter Fishery Convention], 17 *id.* 138, 559 U.N.T.S. 285; Convention on the Territorial Sea and Contiguous Zone, Apr. 29, 1958 [hereinafter Territorial Sea Convention], 15 *id.* 1606; 516 U.N.T.S. 205, [collectively cited hereinafter as the 1958 LOS Conventions]. The preamble of the High Seas Convention declares that it restates

customary international law, and is considered to restate customary law. Many, but not all, of the provisions of the other Conventions reflect customary international law. Annotated Supplement to NWP 9 (Rev. A), *supra* n. 30, para. 1.1 at 1-2 n. 4; *cf.* 1 O'CONNELL, THE INTERNATIONAL LAW OF THE SEA (Shearer ed. 1982) at 385, 474-76.

32. *E.g.*, Convention for Regulation of Whaling, Sept. 13, 1931, 49 Stat. 3079; 155 L.N.T.S. 349, supplemented by Convention for Regulation of Whaling, Dec. 2, 1946, 62 *id.* 1716; 161 U.N.T.S. 72, modified by Protocol, Nov. 19, 1956, 10 U.S.T. 952; 338 U.N.T.S. 366. There are many amendments to the Protocol Schedule. *See* U. S. Department of State, TREATIES IN FORCE (1995) 443-44 [hereinafter TIF].

33. *E.g.*, 1914 SOLAS, *supra* n. 21, applying only to passenger ships; Regulations for Preventing Collisions at Sea, July 15, 1972, 28 U.S.T. 3459; 1050 U.N.T.S. 16, [collectively hereinafter 1972 COLREGS], *reprinted in part as a composite document in* 6 BENEDICT, *supra* n. 22, Doc. 3-4; Convention for Safety of Life at Sea, Nov. 1, 1974, 32 U.S.T. 47, amended by Protocol, Feb. 17, 1978, 32 U.S.T. 5577 and as further amended; Proces-verbal of Rectification to SOLAS 1974, T.I.A.S. 10626, and other amendments [hereinafter 1974 SOLAS], *reprinted and summarized in* 6B & 6C BENEDICT, *supra*, Docs. 14-1, 14-2, 14-6 -14-20. What began as a single treaty in 1914 to regulate passenger liner safety, and thereby minimize losses by sinkings and therefore pollution of the sea from fuel (*e.g.* oil) and cargoes, has expanded into two sets of international agreements, SOLAS (dealing primarily with internal safety of vessels) and COLREGS (establishing rules for safe navigation of vessels in relation to each other and thereby contributing to environmental protection through collision minimization), which contribute indirectly to a cleaner maritime environment. Before becoming party to these agreements, many States had legislation governing rules of the road, *e.g.* Act to Adopt Regulations for Preventing Collisions at Sea, ch. 802, 26 Stat. 320, which collectively could be argued to be State custom on the point. BROWNLIE, *supra* n. 30, at 5. Today, national legislation implements the agreements for many countries, including navigation of internal waters, although the 1972 COLREGS, *supra*, rule 1(b), 28 U.S.T. at 3467, allows States to declare national rules for internal waters. The United States has special internal waters rules. *See* Inland Rules, 33 U.S.C. §§ 2001-38 (1994); demarcation lines are published in 33 C.F.R. §§ 80.01-80.175 (1994). Of particular interest to navies in reducing collision risks, and therefore the risk of pollution resulting from accidents, are incidents at sea agreements, *e.g.*, Agreement on Prevention of Incidents on and over the High Seas, May 25, 1972, USSR-U.S., 23 U.S.T. 1168; 852 U.N.T.S. 151, and Protocol; May 22, 1973, 24 U.S.T. 1063, supplemented by Agreement on Prevention of Dangerous Military Activities, June 12, 1989, *reprinted in* 28 I.L.M. 877 (1989); *see also* 1 BROWN, THE INTERNATIONAL LAW OF THE SEA (1994) at 285; Nagle, Note, *The Dangerous Military Activities Agreement: Minimum Order and Superpower Relations on the World's Oceans*, 31 Va. J. Int'l L. 125 (1990).

34. Hague Convention (VIII) Relative to Laying of Automatic Submarine Contact Mines, Oct. 18, 1907, Arts. 1-6, 36 Stat. 2332, 2343-44; Hague Convention (IX) Concerning Bombarded by Naval Forces in Time of War, Oct. 18, 1907, Arts. 1-4, *id.* 2351, 2363-64.

35. Protocol for Prohibition of Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, June 17, 1925, 94 L.N.T.S. 65, with U.S. no-first-use reservation, Dec. 16, 1974, 26 U.S.T. 571-72.

36. Treaty on Protection of Artistic and Scientific Institutions and Historic Monuments, Apr. 15, 1935, Arts. 1-3, 49 Stat. 3267, 3268-70; 167 L.N.T.S. 289, 290 [hereinafter Roerich Pact].

37. *See, e.g.*, Fourth Geneva Convention, *supra* n. 26, Arts. 14-15, 18-19, 53, 147 and 154, whose provisions along with Hague IX, *supra* n. 34, are protective of the environment when its provisions covering safe areas for the wounded, sick and aged, and children, expectant mothers and mothers of small children, hospital areas, convoys, and destruction of property, coincidentally include environmentally sensitive areas.

38. Convention for Protection of Cultural Property in Event of Armed Conflict, and Protocol, May 14, 1954, 249 U.N.T.S. 215, superseding and supplementing Hague IX, *supra* n. 34, and Roerich Pact, *supra* n. 36.

39. U.N. Convention on the Law of the Sea, Dec. 10, 1982, U.N. Doc. A/CONF.62/122 (1982), *reprinted in* 21 I.L.M. 1261 (1982) [hereinafter 1982 LOS Convention].

40. Guyana ratified the 1982 LOS Convention, *supra* n. 39, on Nov. 16, 1993, and it is now in force for ratifying States. As of Feb. 23, 1995, 73 States had ratified the Convention. *Status of the Convention and Agreement*, 6 U.S. Dep't St. Dispatch Supp. No. 1, at 53 (1995). The Clinton Administration sent the Convention to the Senate for advice and consent, together with a supplemental protocol, commonly known as the "Boat Agreement," which would amend parts of the deep seabed articles. The United States had declined to sign the Convention in 1982 because of objectionable terms in articles dealing with deep seabed mining. *See* President of the United States, *Message Transmitting United Nations Convention on the Law of the Sea, with Annexes, Done at Montego Bay, December 10, 1982 (the "Convention"), and the Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of December 10, 1982, with Annex, Adopted at New York, July 28, 1994 (the "Agreement"), and Signed by the United States, Subject to Ratification, on July 28, 1994*, S. Treaty Doc. No. 103-39, 103d Cong., 2d Sess. (1994) [hereinafter S.Doc. 103-39], *reprinted in part in* 6 U.S. Dep't St. Dispatch Supp. No. 1, at 1-52 (1995). Many countries have consented to be bound by the Boat Agreement, have signed it, or have agreed to apply it provisionally. The United States is in the last category. *Status of the Agreement, supra.* The United States has recognized the Convention's navigational articles—the principal interface for the law of naval warfare and the law of the sea—as representing customary international law for over a decade. President Reagan, *United States Ocean Policy*, Mar. 10, 1983, 19 Weekly Comp.

Pres. Doc. 383 (Mar. 14, 1983). Commentators generally agree that these Convention provisions reflect customary international law. *See, e.g.*, NWP 9 (Rev. A), *supra* n. 30, para. 1.1; Restatement (Third), *supra* n. 30, Part V, *Introductory Note*, at 3-5 (1987); *cf.* Moore, *Introduction* to 1 NORDQUIST, UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY (1985) at xxviii; Oxman, *International Law and Naval and Air Operations at Sea, in* LAW OF NAVAL OPERATIONS, *supra*, n. 30, at 19, 29; *but see* 1 O'CONNELL, *supra* n. 31, at 48-49. O'Connell researched *id.* through 1978, using drafts of the evolving Convention, but died before the final version was available. Shearer made changes and additions, publishing before final negotiations produced the Convention. Shearer, *Editor's Preface* to *id.*, at vii. Hence, O'Connell's volumes may reflect views of the decade before Restatement (Third), *supra*, was published. In 1983, the United States claimed a 200-mile exclusive economic zone (EEZ) in accordance with 1982 LOS Convention principles. Proclamation No. 5030, 48 Fed. Reg. 10605 (Mar. 10, 1983). In 1988, the United States claimed a 12-mile territorial sea in accordance with the Convention. Proclamation No. 5928, 54 *id.* 777 (Dec. 27, 1988). Analysis of the Convention as modified by the Boat Agreement has been favorable. *See Law of the Sea Forum: The 1994 Agreement on the Seabed Provisions of the Convention on the Law of the Sea*, 88 A. J. I. L. 687 (1994). U.S. Department of Defense, *National Security and the Convention on the Law of the Sea* (July 1994) urged advice and consent, stressing the Convention's importance for national security.

41. 1982 LOS Convention, *supra* n. 39, Art. 311(1), specifically declaring that the Convention prevails, as among States party to it, over the 1958 LOS Conventions, *supra* note 31.

42. Annotated Supplement to NWP 9 (Rev. A), *supra* n. 30, Table ST1-1; U.N. Pub. Sales No. E.83.V.5, *supra* n. 39, at 190.

43. Vienna Convention on the Law of Treaties, May 23, 1969 [hereinafter Vienna Conventions], Art. 18, 1155 U.N.T.S. 331, 336; SINCLAIR, THE VIENNA CONVENTION ON THE LAW OF TREATIES (2d ed. 1984) at 19, 42-44 (provisions may have gone beyond customary rules); Restatement (Third), *supra* n. 30, sec. 312(3), cmt. i & r.n.6; U.N.G.A. Res. 59a, 38 U.N. GAOR, Supp. No. 47, at 48 (1983) (calling on all States to refrain from actions undermining 1982 LOS Convention, *supra* n. 39).

44. The United States and many commentators have said that the Convention's navigational articles restate customary law. *See supra* n. 40.

45. Diederich, *supra* n. 28, at 43-44, notes that the U.N. Charter has no direct reference to environmental concerns but that this could be subsumed under *id.*, Arts. 1(3)-(4).

46. U.N. Charter, Art. 103. This applies to U.N. Members' obligations under U.N. Security Council decisions pursuant to Arts. 25, 48. Reisman, *The Constitutional Crisis in the United Nations*, 87 A.J.I.L. 83, 87 (1993). Art. 103's rule, analogous to the supremacy clause of U.S. Const., Art. VI with respect to the laws of the 50 states of the United States, is at variance with traditional treaty construction rules. Although later treaties on the same subject usually supersede earlier ones, the reverse—*i.e.*, earlier treaties prevailing over later ones—is generally not true unless the later agreement declares it is subject to the earlier one. *Cf.* Vienna Convention, *supra* n. 43 Arts. 5, 30; *see also* Restatement (Third), *supra*, n. 30 sec. 323; SINCLAIR, *supra*, n. 43, at 85-87, 94-95, 160, 184-85, 246.

47. 1982 LOS Convention, *supra* n. 39. Art 237. Art. 237 is a *lex specialis* for Part XII of the Convention, *i.e.*, its provisions for protecting the marine environment. 4 NORDQUIST, *supra* n. 20, para 237.7(a)(1991); 1982 LOS Convention, *supra*, Art. 311(5) permits such. 5 NORDQUIST, UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY para 311.11, (Rosenne & Sohn eds. 1989) at 243; *see also* Charney, *The Marine Environment and the 1982 United Nations Convention on the Law of the Sea*, 28 Int'l Law. 879, 884 (1994). Art. 237(1) states a recognized way to preserve the force of a prior treaty, subject to the consistency limitation of Art. 237(2). Vienna Convention, *supra* n. 43, Art. 30(2). 1 OPPENHEIM'S INTERNATIONAL LAW (Jennings & Watts eds. 1992) sec. 590 at 1213 [hereinafter 1 OPPENHEIM]; Restatement (Third), *supra* n. 30, sec. 323(1); SINCLAIR, *supra* n. 43, at 97-98.

48. 1982 LOS Convention, *supra* n. 29, Art. 311(2). Presumably this includes 1972 COLREGS and 1974 SOLAS, *supra*, n. 33.

49. This might be contrasted with 1982 LOS Convention, *supra* n. 39, Art 311(1), expressly superseding the 1958 LOS Conventions, *supra* n. 31, where 1982 Convention parties are also parties to the 1958 agreements. If, in a particular situation, a country is party to the 1958 Conventions but is not party to the 1982 LOS Convention, and the other country is party to the 1982 Convention and was party to the 1958 Conventions, the 1958 rules apply. Vienna Convention, *supra* n. 43, Art. 30(4)(b); Restatement (Third), *supra* n. 30, sec. 323(3)(b); SINCLAIR, *supra*, n. 43 at 94. To the extent that custom, general principles or perhaps secondary sources such as court decisions or commentators would conflict with a treaty norm in either the 1982 or the 1958 treaties at issues, those conflicting rules would be thrown into the decision matrix. If the customary rule, principle or other source is the same as the treaty rule, the latter is strengthened. I.C.J. Statute, Arts. 38, 59; Vienna Convention, *supra*, Preamble, Arts. 38, 43 (recognizing the independent vitality of custom); BROWNLIE, *supra* n. 30 at 12-19; D'AMATO, THE CONCEPT OF CUSTOM IN INTERNATIONAL LAW (1971) at 104-06, 114, 136, 164; VON GLAHN, LAW AMONG NATIONS (5th ed. 1986) at 25 (recognizing principles as a gap-filler); 1 OPPENHEIM, *supra* n. 47, sec. 11, at 33-36; Restatement (Third), *supra* n. 30, secs. 102-03 (recognizing principles as primarily a gap-filler); SCHACHTER, INTERNATIONAL LAW IN THEORY AND PRACTICE (1991) at 49-65, 74-81 (same); SINCLAIR, *supra* n. 43, at 6, 9-10, 102-03; Akehurst, *Custom as a Source of International Law*, 47 Brit. Y.B. Int'l

L. 1, 49-52 (1974); Robertson, *Contemporary International Law: Relevant to Today's World?*, 45 Nav. War C. Rev. 89, 91-94 (Summer 1992). High Seas Convention, *supra* n. 31, has been generally recognized as stating customary rules. To the extent that these principles carry forward into the 1982 LOS Convention, they stand on quite firm ground indeed. This is particularly important in the context of the relationship among the law of the sea, the law of armed conflict, and the emerging law of the environment as it applies to high seas operations.

50. 1982 LOS Convention *supra* n. 39, Arts. 192-237.

51. *See generally, e.g., id.*, Arts. 21(1)(f), 22(2), 23, 28(2), 33, 39(2)(b), 42(1)(a)-42(1)(b), 42(2)-42(5), 43(b), 44, 56(1)(b)(iii), 56(3), 60(1), 61-72, 80, 94(4)(c), 94(7), 116, 122-23, 145-46, 147(1), 147(2)(b), 147(c), 149, 233, 303; for further analysis *see* 2 NORDQUIST, UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY, (Nandan, *et al.* eds. 1993) paras. 22.1-22.9, 23-1-23-9, 39.1-39.10(1), 42.1-41.1.10(1), 43.1-43.8(e), 44.1-44.8(c), 61.1-61.12(k), 62.1-62.16(1), 63.1-63.12(f), 64.1-64.(9)(f), 65.1-65.16(i), 66.1-66.9(g), 67.1-67.8(e), 68.1-68.5(b), 69.1-69.17(h), 70.1-70.11(d), 71.1-71.9(c), 72.1-71.10(h), 303.1-303.10; S. Doc. 103-39, 6 U.S. Dep't St. Dispatch, Supp. No. 1, at 23, 25-28, 51; Restatement (Third), *supra* n. 30, secs. 457, r.n. 7; 461, cmt. e; 512; 523(1)(b)(ii) & cmt.d. Some provisions of the Convention echo the 1958 LOS Conventions. *See, e.g.*, Fishery Convention, *supra* n. 31, Arts. 1-8, 13; High Seas Convention, *supra* n.31, Arts. 10, 11(1), 13.

52. The Stockholm Conference also "had a great influence for later deliberations on the protection and preservation of the marine environment" in later U.N. Committees and in the 1982 LOS Convention negotiations. *Introduction*, para. XII.11, in 4 NORDQUIST, *supra* n. 20, at 8-9; Restatement (Third), *supra* n. 30, Part IV, *Introductory Note*, at 99; *see also* BIRNIE & BOYLE, *supra* n. 28, at 39-53; Petsonik, *The Role of the United Nations Environment Programme (UNEP) in The Development of International Environmental Law*, 5 Am. U.J. Int'l L. & Pol. 351 (1990). The Conference *Report* included a Declaration on the Human Environment [hereinafter Stockholm Declaration] with 26 Principles, an Action Plan for the Human Environment, and various resolutions. *See* 11 I.L.M. 1416 (1972). *Principle 6* states in part that "[D]ischarge of toxic . . . or other substances and the release of heat in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted . . . to ensure that serious or irreversible damage is not inflicted on ecosyustems." *Principle 7* declares that "States shall take all possible steps to prevent pollution of the seas by substances . . . liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea. . . ." *Principle 21* says States must achieve a balance between exploiting their resources and their responsibility to see that this does not harm others' environments:

> States have, in accordance with the [U.N. Charter] and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22 would require "States [to] co-operate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction. . . ." *Principle 26* protested nuclear weapons, and other weapons of mass destruction, with a plea for agreements to eliminate and destroy them. *Id*, at 1418, 1420-21. U.N. Environmental Programme Participation Act of 1973, Pub. L. No. 93-188, *sec.* 2, 87, Stat. 713, declared U.S. Congressional policy "to participate in coordinating efforts to solve environmental problems of global and international concern. . . ." Two years later, U.N.G.A. Res. 3281, *Charter of Economic Rights and Duties of States*, at Arts. 29-30, *reprinted in* 14 I.L.M. 251 (1975), reiterated nations' duties to use the sea for peaceful purposes to preserve the environment. These resolutions, except insofar as they restated customary or conventional law, were not binding on U.N. Members. U.N. Charter, Arts. 10, 14. *See infra* n. 62 and accompanying text.

53. Kuwait Regional Convention for Co-operation on Protection of the Marine Environment from Pollution, Apr. 24, 1978, 1140 U.N.T.S. 133 [hereinafter Kuwait Regional Convention]; Protocol concerning Co-operation in Combating Pollution by Oil and Other Harmful Substances in Case of Emergency, Apr. 24, 1978, 1140 U.N.T.S. 201 [hereinafter Kuwait Protocol]. All countries bordering the Persian Gulf were signatories: Baharain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, U.A.E. The Convention and Protocol went into force July 1, 1979. Salter, *supra* n. 2, at 351. Kuwait Regional Convention. Protocol on Pollution Resulting from Exploration and Exploitation of the Continental Shelf, Mar. 29, 1989, has been signed. 1 BROWN, *supra* n. 33, at 355-56.

54. Convention for Conservation of the Red Sea and Gulf of Aden Environment, Feb 14, 1982, *reprinted in* 2 WALLACE, *supra* n. 20, at 2282 [hereinafter Red Sea Convention]; Protocol Concerning Regional Co-operation in Combating Pollution by Oil and Other Harmful substances in Cases of Emergency, Feb 14, 1982 [hereinafter Red Sea Protocol], *reprinted in id.* at 2293. Signatories include Jordan, Palestine Liberation Organization for Palestine, People's Democratic Republic of Yemen, Saudi Arabia, Somalia, Sudan and Yemen Arab Republic, all bordering the Red Sea and Gulf of Aden, but any Arab League member can accede to the Convention. Red Sea Convention, *supra*, Preamble, Art. 26(2), *id*, at 2282, 2291.

55. *See generally*, DOD REPORT, *supra* n. 2, at 48-63, 88-181, 221.

56. *E.g.*, Kuwait Regional Convention, *supra* n. 53, Arts. 16-18; Kuwait Protocol, *supra* n. 53, Arts. 3, 5-13; Red Sea Convention, *supra* n. 54, Arts. 16-20, 22, 24; Red Sea Protocol, *supra* n. 54, Arts. 3, 5-13. Another recent example, involving U.S. participation, is a package of agreements governing protection of the South Pacific Ocean. Convention for Protection of Natural Resources and Environment of the South Pacific Region, Nov. 24, 1986, *reprinted in* 26 I.L.M. 38(1986); Protocol for Prevention of Pollution of the South Pacific Region by Dumping, Nov. 24, 1986, *reprinted in id*, 65 (1986); Protocol Concerning Co-operation in Combating Pollution Emergencies in the South Pacific Region, Nov. 24, 1986, *reprinted in id*, 59 (1986); *see also* U.S. Understanding, S. Treaty Doc. 101-21, at 53.

57. *See, e.g.*, 1982 LOS Convention, *supra* n. 39, Arts. 23, 39, 41(5), 43(a), 94(4)(c), 94(5), 197, 200-02, 207-12, 217, 221-22, 303; *see also* 5 NORDQUIST *supra* n. 47, paras. 311.8m 311.11.

58. Vienna Convention, *supra* n. 43, Preamble, Arts. 38, 43.

59. *See generally* I.C.J. Statute, Arts. 38, 59; Restatement (Third), *supra* n. 30, §§ 102-03.

60. Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.) [hereinafter *Nicaragua Case*], 1986 I.C.J. 14, 31-38, 91-135; *Corfu Channel Case* (U.K. v. Alb.), 1949 I.C.J. 4, 22.

61. Akehurst, *supra* n. 49, at 49-52. The 1982 LOS Convention, *supra* n. 39, Art. 22(1), seems to anticipate this possibility with respect to proportionate anticipatory action to ward off pollution threats. Art. 310 states:

> Article 309 does not preclude a State, when signing, ratifying or acceding to this Convention, from making declarations or statements, however phrased or named, with a view, *inter alia*, to the harmonization of its laws and regulations with the provisions of this Convention, provided that such declarations or statements do not purport to exclude or to modify the legal effect of the provisions of this Convention in their application to the State.

Art. 309 forbids reservations or exceptions to the Convention and is the reason for the Boat Agreement, *supra* n. 40, to amend Part XI of the Convention. *See supra* n.40 and accompanying text. Such statements, taken collectively, arguably could articulate custom apart from the Convention. However, occasional presence of clear, contradictory authorizations for custom, *e.g.*, Art 22(1), plus the "obscurity and uncertainty" of Art. 310's meaning—*cf.* 5 NORDQUIST, *supra* n. 47, para 310.5—indicate that custom and other sources can be considered alongside Convention norms. Certainly this is true for the law of naval warfare, largely customary in source, which enters through the "other rules" clauses, with which the Convention is replete.

62. U.N. Members must comply with Security Council "decisions" under U.N. Charter, Arts, 25, 41, 48; these supersede treaty obligations. *Id.*, Art. 103; Reisman, *Constitutional Crisis*, *supra* n. 46 at 87. The Council may also recommend action or call upon States for action pursuant to U.N. Charter, Arts. 39-41, or the General Assembly may recommend action under *id.*, Arts. 10, 14, but these resolutions do not have the binding force of decisions, although they may restate customary or treaty norms and thereby strengthen them. BAILEY, THE PROCEDURE OF THE U.N. SECURITY COUNCIL (2d ed. 1988) ch. 3.6; BROWNLIE, *supra* n. 30, at 5, 699-700; CASTENADA, LEGAL EFFECTS OF UNITED NATIONS RESOLUTIONS (Amoia trans. 1969) at ch.3.j; GOODRICH *et al.*, CHARTER OF THE UNITED NATIONS (3d rev. ed. 1969) 111-14, 141-45, 207-11, 290-314, 334-37, 614-17; Restatement (Third), *supra*, n. 30, secs. 102, cmt. g; 103(2)(d), cmt. c & r.n.2; SCHACHTER, *supra* n. 49, ch. 6; SIMMA, THE CHARTER OF THE UNITED NATIONS: A COMMENTARY (1994), at 236-42, 270-87, 409-18, 614-16, 618, 626-28, 631-35, 651, 1118-25.

63. *Jus cogens* is a fundamental norm that would override rules in treaties and custom, two primary sources of international law stated in, *e.g.*, I.C.J. Statute, Arts. 38, 59; Restatement (Second), *supra* n. 30, *secs.* 102-03. Its contours are vague and depend on a commentator's views, which can range from expansive (*e.g.*, those of the former U.S.S.R., whose jurisprudence may still have influence) to totally deprecatory. *See generally* Vienna Convention, *supra* n. 43, at 53, 64, considered by SINCLAIR, *supra* n. 43, at 17-18, 218-26, to be progressive development; ELIAS, THE MODERN LAW OF TREATIES, (1974) at 177-87; 1 OPPENHEIM, *supra* n. 47, secs. 2, at 8 & n. 2; Restatement (Third), *supra* n. 30 *sec.* 338(e); TUNKIN, THEORY OF INTERNATIONAL LAW, (Butler trans. 1974) at 98; Alexidze, *Legal Nature of Jus Cogens in Contemporary International Law*, 172 R.C.A.D.I. 219, 262-63 (1981); Hazard, *Soviet Tactics in International Law Making*, 7 Den. J. Int'l L. & Pol. 9, 25 (1977); Arechaga, *International Law in the Past Third of a Century*, 159 R.C.A.D.I. 1, 68 (1978); Weisburd, *The Emptiness of the Concept of Jus Cogens. As Illustrated by the War in Bosnia-Herzegovina*, 17 Mich. J. Int'l L. 1 (1995). The I.C.J. held in the *Nicaragua Case*, *supra* n. 60, that U.N. Charter, Art. 2(4), was customary law having the character of *jus cogens*. The 1979 U.S.S.R. invasion of Afghanistan, pursuant to a 1978 agreement, was condemned in part under Vienna Convention, *supra*, Art. 53 principles. States—International Status, Attributes & Types, 1979 Digest *sec.* 1, at 34, quoting Memorandum from Owen, U.S. Department of State Legal Adviser, to Christopher, Acting Secretary of State, Dec. 29, 1979. A more interesting issue, left unanswered by the Charter, is the place of customary law or general principles varying from the Charter's terms as a treaty. This was not resolved in the *Nicaragua Case*, *supra*. The Charter, Art. 103, speaks of "obligations" under treaties, and whether this includes custom and perhaps principles, is debatable. SIMMA, *supra* n. 62, at 1118-25, would argue for Charter supremacy. Perhaps 1 OPPENHEIM, *supra*, would agree if the Charter norm is *jus cogens* in nature. One competing factor is the force of national sovereignty; if U.N. Members gave up freedom to make treaties to the measure of U.N. Charter, Art. 103, that does not necessarily mean that they gave up the sovereign right to build contrary custom, under this theory. *See e.g.*, U.N. Charter, Arts. 2(1), 2(7); 1982 LOS Convention, *supra* n. 39, Art. 157(3); Vienna Convention, *supra* n.43, Preamble;

U.N. Secretary-General, *An Agenda for Peace: Report of the Secretary-General on the Work of the Organization*, U.N. Doc. A/47/277 S/2411 (1991), *reprinted in* 31 I.L.M. 956, 959 (1992); S.S. Lotus (Fr. v. Turk.), 1927 P.C.I.J. (Ser.A) 4, 18 [hereinafter *Lotus Case*]; S.S. Wimbledon (U.K. v. Ger.), 1923 *id.*, No. 1, at 15, 25; Declaration of Principles of International Law Concerning Friendly Relations Among States, U.N.G.A. Res. 2625, *reprinted in* 9 I.L.M. 1292; BROWNLIE, *supra* n. 30, ch. 13; Anand, *Sovereign Equality of States in International Law*, 197 C.A.D.I. 9, 22-51, 189 (1986); Fitzmaurice, *The General Principles of International Law Considered from the Standpoint of the Rule of Law*, 92 *id*, 49-50 (1957); Lachs, *The Development and General Trends of International Law in OurTime*, 169 *id*, 1, 77-84 (1980); Waldock, *General Course on Public International Law*, 106 *id*, 1, 156-72 (1962).

64. *Compare e.g.*, 1982 LOS Convention, *supra* n. 39, Preamble, Arts. 2(3) (territorial sea), 19, 21, 31 (innocent passage), 342(2) (straits transit passage), 45 (straits innocent passage, incorporation by reference of Arts. 19, 21, 31), 52(1) (archipelagic sea lanes passage), 58(1), 58 (3) (EEZs), 78(2) (continental shelf; coastal State cannot infringe or interfere with "navigation and other rights and freedoms of other States as provided in this Convention), 87(1) (high seas), 138 (the Area), 303(4) (archaeological, historical objects found at sea; "other international agreements and rules of international law regarding the protection of objects of an archaeological and historical nature"), *with e.g.*, High Seas Convention, *supra* n. 31, Art. 2, Territorial Sea Convention, *supra* n. 31, Art. 1. Although the other 1958 LOS Conventions do not include specific "other rules" clauses, they state that they do not affect the status of waters above as high seas, in the case of the continental shelf, or other high seas rights, in the case of high seas fisheries. Continental Shelf Convention, *supra* n. 31, Arts. 1, 3, 15; Fishery Convention, *supra* n. 31, Arts. 1-8, 13.

65. 1982 LOS Convention, *supra* n. 39, Art. 87(1).

66.The General Assembly elects 34 members to the I.L.C. after nominations by governments. The 1958 LOS Conventions, *supra* n. 31, emerged through the I.L.C. *See generally*, BRIGGS, THE INTERNATIONAL LAW COMMISSION (1969); BROWNLIE, *supra* n. 30 at 30-31; SCHACHTER, *supra* n. 49, at 66-69, 71-72; Briggs, *Reflections on the Codification of International Law by the International Law Commission and by Other Agencies*, 126 R.C.A.D.I. 233 (1969); Jennings, *The Progressive Development of International Law and Its Codification*, 24 Brit. Y.B. Int'l L. 301, 310-29 (1947); Lauterpacht, *Codification and Development of International Law*, 49 A.J.I.L. 16 (1955); Rosenne, *The International Law Commission, 1949-59*, 30 Brit. Y.B. Int'l L. 104 (1960).

67. International Law Commission, *Commentary on Vienna Convention on the Law of Treaties, in* Report of the Commission to the General Assembly, U.N. Doc. A/6309/Rev. 1 (1966) *reprinted in* 1962(2) Y.B. Int'l L. Comm'n 267-68; Briggs, *Unilateral Denunciation of Treaties: The Vienna Convention and the International Court of Justice*, 68 A.J.I.L. 51 (1974); Boczek, *Peaceful Purposes Provisions of the United Nations Convention on the Law of the Sea*, 20 Ocean Devel. & Int'l L. 359 (1989); Christol & Davis, *Cuban Quarantine: The Naval Interdiction of Offensive Weapons and Associated Material to Cuba, 1961*, 57 A.J.I.L. 525, 539-40 (1963); Davidson, *United States Protection of Reflagged Kuwaiti Vessels in the Gulf War: The Legal Implications*, 4 Int'l J. Estuarine & Coastal L. 173, 178 (1989); Fenrick, *Legal Aspects of the Falklands Naval Conflict*, 24 Mil. L. & L. of War Rev. 243, 245 (1983); Lowe, *The Commander's Handbook on the Law of Naval Operations and the Contemporary Law of the Sea in* LAW OF NAVAL OPERATIONS, *supra* n. 30, at 109, 132; Oxman, *The Regime of Warships Under the United Nations Conventions on the Law of the Sea*, 24 Va. J. Int'l L. 809, 811 (1984); Ronzitti, *The Crisis of the Traditional Law Regulating International Armed Conflicts at Sea and the Need for Its Revision in* LAW OF NAVAL WARFARE, *supra* n. 30, at 15; Russo, *Neutrality at Sea, supra* n. 9, at 384; Thorpe, *Mine Warfare at Sea - Some Legal Aspects of the Future*, 18 *id*, 255, 257 (1987); Wolfrum, *Reflagging and Escort Operations in the Persian Gulf: An International Law Perspective*, 29 Va. J. Int'l L. 386, 391-92 (1982). Apparent dissenters include 2 O'CONNELL, *supra* n. 19, at 1112-13, referring to *id*, 747-69, in the context of the nationality of merchant ships; Low & Hodgkinson, *supra* n. 2, at 421, who discuss Iraq's environmental protection obligations in the LOS context and say nothing about the clauses, although *id* 438-42 elliptically seems to recognize the principle; Okorodudu-Fubara, *supra* n. 2, at 195-97; Rauch, *The Protocol Additional to the Geneva Conventions for the Protection of Victims of International Armed Conflicts and the United Nations Convention on the Law of the Sea: Repercussions on the Law of Naval Warfare: Report to the Committee on the Protection of Human Life in Armed Conflict of the Society for Military Law of War* 22-49a (July 1983) (manuscript in author's possession). 1 BROWN, *supra* n. 33, at 280 recognizes the similar "other rules" clauses pertaining to high seas rights but declares that "freedom of the high seas must be exercised under conditions laid down in the Convention and by other unspecified rules of international law." 3 UNITED NATIONS CONVENTION ON THE LAW OF THE SEA 1982: A COMMENTARY, (Nordquist ed. 1995) [hereinafter 3 NORDQUIST] at para. 87.9(i) states that "Uses of the high seas for military purposes—though restricted in other maritime zones, comes within the scope of the freedom of the high seas," citing to 1982 LOS Convention, *supra* n. 39, Arts. 19(2)(b), 19(2)(f), 52(2), (innocent passage). Similar clauses in High Seas Convention, *supra* n. 31, Art. 2, had been interpreted to include freedom to undertake scientific research, to explore or exploit high seas subsoil resources and to test nuclear weapons. These are now regulated by 1982 LOS Convention, *supra*, Parts XI & XIII; Treaty on Prohibition of Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-bed and the Ocean Floor and in the Subsoil Thereof, Feb. 11, 1971, 23 U.S.T. 704; 955 U.N.T.S. 115 [hereinafter Seabed Treaty].

68. 1982 LOS Convention, *supra* n. 39, Art. 88. The Convention also says that Area use is reserved for peaceful purposes, and marine scientific research must be conducted for peaceful purposes. *Id.*, Arts. 141, 143(1), 147(2)(d),

155, 240(a), 242(1), 246(3). Ensuing analysis will be confined to Art. 88; conclusions with respect to it apply *mutatis mutandis* to other "peaceful purposes" provisions. The language originated in Antarctic Treaty, Dec. 1, 1959, Art. 1(1), 12 U.S.T. 794, 795; 402 U.N.T.S. 71, 72 and is in Treaty on Principles Governing Activities of States in Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, Art. 4, 18 *id.* 2410, 2413-14; 610 U.N.T.S. 205, 207 [hereinafter Space Treaty]; ENMOD Convention, *supra* n. 24, Art. 3(1), 31 *id.* at 336; 1108 U.N.T.S. at 153; Agreement Governing Activities of States on the Moon and Other Celestial Bodies, Dec. 5, 1979, Art. 3(1), 1363 U.N.T.S. 3, 22.

69. Restatement (Third), *supra* n. 30, § 521, cmt. b, citing U.N. Charter, Art. 2(4); 1982 LOS Convention, *supra* n. 39, Arts. 88 & 301, and referring to Restatement (Third), *supra*, § 905, cmt. g; *accord*, Russo, *Targeting Theory in the Law of Naval Warfare*, 30 Nav. L. Rev. 1, 8 (1992); *see also* 2 NORDQUIST, *supra*, n. 67, paras. 87.9(i), 88.1-88-7(d). Boczek, *supra* n. 67; Oxman, *Regime of Warships*, *supra* n. 67, at 814, 829-32; Parkerson, *International Legal Implications of the Strategic Defense Initiative*, 116 Mil. L. Rev. 67, 79-85 (1987).

70. U.N. Charter, Art. 103; *see also supra* n. 46 and accompanying text.

71. *See supra* nn. 46-49 and accompanying text.

72. U.N. Charter, Art. 51; *see also* S. Doc. 103-39, 6 U.S. Dep't St. Dispatch, Supp. No. 1, at 51. There is a debate as to whether anticipatory self-defense, as opposed to "reactive" self-defense where an aggressor must strike the first blow before a right of self-defense is triggered, is permitted in the Charter era. The U.S. view, supported by many researchers, is that anticipatory self-defense is permissible in the Charter era under *Caroline Case* limitations, *i.e.* when there is a clear necessity that is instant, overwhelming and leaves no choice of peaceful means, *see* NWP 9A, *supra* n. 30, para. 4.3.2.1, citing *Caroline Case*, letter of U.S. Secretary of State Daniel Webster to U.K. Ambassador Lord Alexander B. Washburton, Aug. 6, 1842, 2 MOORE, DIGEST 411-12; letter of Secretary Webster to U.K. Minister Henry S. Fox, Apr. 24, 1841, in 1 SHEWMAKER, THE PAPERS OF DANIEL WEBSTER: DIPLOMATIC PAPERS (1983) at 58, 67. Some scholars take the opposite view. *See generally* BOWETT, SELF-DEFENSE IN INTERNATIONAL LAW (1958) at 187-93 ; BROWNLIE, INTERNATIONAL LAW AND THE USE OF FORCE BY STATES (1963) at 257-61, 275-78, 366-67; DINSTEIN, WAR, AGGRESSION AND SELF-DEFENSE (1988) at 86, 174-79; HENKIN, INTERNATIONAL LAW: POLITICS AND VALUES (1995) at 121-25; MCDOUGAL & FELICIANO, LAW AND MINIMUM WORLD PUBLIC ORDER (1961) at 232-41; MCNAIR & WATTS, THE LEGAL EFFECTS OF WAR (4th ed. 1966) at 16, 18 ; O'CONNELL, THE INFLUENCE OF LAW ON SEA POWER (1979) at 83; 1 OPPENHEIM, *supra* n. 47, sec. 127; SCHACHTER, *supra* n. 49, at 150-52; SIMMA, *supra* n. 54, at 675-76; STONE, AGGRESSION AND WORLD ORDER (1958) at 44; Bunn, *International Law and the Use of Force in Peacetime: Do U.S. Ships Have to Take the First Hit?*, 39 Nav. War C. Rev. 69-70 (1986); Greenwood, *Remarks*, in Panel, *Neutrality, The Rights of Shipping and the Use of Force in the Persian Gulf War (Part I)*, 1988 Proc. Am. Soc'y Int'l L. 158, 159-61 (1990); Lagoni, *Remarks*, in *id.* 161, 162; Linnan, *Self-Defense, Necessity and U.N. Collective Security: United States and Other Views*, 1991 Duke J. Comp. & Int'l L. 57, 65-84, 122; Lowe, *supra* n. 67, at 127-30; McHugh, *Forcible Self-Help in International Law*, 25 Nav. War C. Rev. 61 (No. 2, 1972); Reisman, *Criteria for the Use of Force in International Law*, 10 Yale J. Int'l L. 279 (1985); Turner, *State Sovereignty, International Law, and the Use of Force in Countering Low-Intensity Aggression in the Modern World, in* LEGAL AND MORAL CONSTRAINTS ON LOW-INTENSITY CONFLICT (Nav. War C. Int'l L. Stud., v. 67, Coll, *et al.* eds. 1995) at 43, 62-80 ; Waldock, *The Regulation of the Use of Force by Individual States in International Law*, 81 R.C.A.D.I. 451, 496-99 (1952). Lowe, *supra* n. 67 at 128, notes that the *Nicaragua Case*, *supra* n. 60, at 93, specifically excluded considering anticipatory self-defense, and that States will likely rely on it more in the future.

73. *See supra* nn. 31-33 and accompanying text.

74. *E.g.*, Civil Liability Convention, *supra* n. 22, Art. 3(1), (exclusion of liability due to "act of war, hostilities, civil war, [or] insurrection"). The Convention has been modified by 1976 Protocol, *supra* n. 22, and would be further modified by 1984 Protocol, Art. 3, *reprinted in* 6 Benedict, *supra* n. 22, Doc. 6A, which extended coverage to parties' declared EEZs, or to a 200-mile belt off coasts of States that have not declared one. The 1992 Protocol, *supra* n. 22, *id.*, Doc. 6B, modifies the Convention in ways irrelevant to this analysis. *See generally* 2 O'CONNELL, *supra* n. 19, at 1008-10. Convention on International Civil Aviation, Dec. 7, 1944, Art. 89, 61 Stat. 1180, 1205; 15 U.N.T.S. 295, 356, declares that it applies during war.

75. *E.g.*, Convention for Prevention of Pollution of the Sea by Oil, May 12, 1954 [hereinafter 1954 Oil Pollution Convention], Art. 19, 12 U.S.T. 2989, 3004; 327 U.N.T.S. 3, 18; amendments, Apr. 11, 1962, 17 *id.* 1523; 600 U.N.T.S. 332, and Oct. 21, 1969, 28 *id.* 1205, do not affect this Article; Treaty for Establishment of the European Economic Community, Mar. 15, 1957, Arts. 223-26, 1973 Gr. Brit. T.S. No. 1 - Part II (Cmd. 5179-II), 298 U.N.T.S. 3, 88-89.

76. North American Free Trade Agreement, Dec. 8-17, 1992, Art. 2204, T.I.A.S. No. ——, *reprinted in* 32 I.L.M. 289, 605, 702 (1993) [hereinafter NAFTA]. NAFTA has many environmental protection provisions. NAFTA, *supra*, Arts. 104, 709-24, 901-15, 1101, 1114, 2005, 2014-15, 2101, analyzed in MAGRAW, NAFTA & THE ENVIRONMENT: SUBSTANCE AND PROCESS (1995) ch. 1; Baker, *After the NAFTA*, 27 Int'l Law. 765, 769 (1993); Garvey, *Trade Law and Quality of Life — Dispute Resolution Under the NAFTA Side Accords on Labor and the Environment*, 89 A.J.I.L. 439 (1995); Ludwiszewski, *"Green" Language in the NAFTA; Reconciling Free Trade and Environmental Protection*, 27 Int'l Law. 691 (1993); Stewart, *The NAFTA: Trade, Competition, Environmental Protection*, *id.* 751 (1993). NAFTA includes a specific national security exception, stating *inter alia* that nothing in it shall be construed to prevent a party from taking actions

it considers necessary to protect its "essential security interests," taken during war or other emergency in international relations, or to prevent a party from acting pursuant to its obligations under the U.N. Charter for maintaining international peace and security. NAFTA, *supra*, Arts. 2102(1)(b)-2102(c). A potentially hemispheric agreement, NAFTA is subject to the General Agreement on Tariffs and Trade, Oct. 30, 1947, 61(5,6) Stat., 55-61 U.N.T.S. [hereinafter GATT]; TIF, *supra* n. 32, at 355-58, lists GATT amendments. NAFTA, *supra*, Art.103(1). GATT, *supra*, Art. 21, 61(5), is similar to NAFTA, *supra*, Art. 2102.

77. *E.g.*, Kuwait Regional Convention and Protocol, *supra* n. 53; Red Sea Convention and Protocol, *supra* n. 54.

78. *See supra* n. 31 and accompanying text.

79. *Cf.* I.C.J. Statute, Arts. 38, 59; Restatement (Third), *supra* n. 30, secs. 102-03; *see also supra* nn. 49, 58-61 and accompanying text.

80. Vienna Convention, *supra* n. 43, Art. 61; *see also* ELIAS, *supra* n. 63, at 128-30; Restatement (Third), *supra* n. 30, § 336, cmt. c & r.n. 3; SINCLAIR, *supra* n. 43, at 190-92; International Law Commission, Report on the Work of its Eighteenth Session, *Report of the Commission to the General Assembly*, U.N. Doc. A/6309/Rev. 1 [hereinafter I.L.C. Report], *reprinted in* 2(1974) Y.B. Int'l L. Comm'n 171, 255-56 (noting relative rarity of the practice). MCNAIR, THE LAW OF TREATIES (2d ed. 1961) at 685 does not recognize a separate doctrine, but some of his hypothetical examples are impossibility situations.

81. Vienna Convention, *supra* n. 43, Art. 62, said declaratory of customary law by Fisheries Jurisdiction (U.K. v. Ice.), 1973 I.C.J. 3, 18; *see also* I.L.C. Report, *supra* n. 80, at 257-58; Restatement (Third), *supra* n. 30, sec. 336 & r.n. 1; SINCLAIR, *supra* n. 43, at 20, 192-96; Sharp, *supra* n. 2, at 24-25. For criticism of the Convention approach, substituting a new term —fundamental change of circumstances — for the traditional *rebus sic stantibus* phrase in revising the rules, *see* DAVID, THE STRATEGY OF TREATY TERMINATION (1975) ch. 1; Lissitzyn, *Treaties and Changed Circumstances*, 61 A.J.I.L. 895 (1967). ELIAS, *supra* n. 63, at 119-28, says the traditional view of *rebus sic stantibus* is no longer admissible today. For further analysis of pre-Convention practice, *see* Bederman, *The 1871 Declaration. Rebus Sic Stantibus and a Primitivist View of the Law of Nations*, 81 A.J.I.L. 1 (1988); Haraszti, *Treaties and the Fundamental Change of Circumstances*, 146 R.C.A.D.I. 1 (1975). U.S. practice has recognized the principle in what today would be considered a maritime environmental context. *See* Lissitzyn, *supra*, at 908-11.

82. Vienna Convention, *supra* n. 43, takes no position on the impact of armed conflict on treaties. Attempts to insert a Convention provision were defeated. Kearney & Dalton, *The Treaty on Treaties*, 64 A.J.I.L. 495, 557 (1970). Other sources must be examined for applicable law in such situations. Briggs, *Unilateral Denunciation*, *supra* n. 67, at 51. Restatement (Third), *supra* n. 30, sec. 336 cmt. e & r.n. 4, says war may be a basis for a fundamental change of circumstances claim. Others have considered war as a separate ground. *See, e.g.*, Institut de Droit International, *The Effects of Armed Conflicts on Treaties*, Aug. 28, 1985, 61(2) Annuaire 278 (1986); Institut de Droit International, *Regulations Regarding the Effect of War on Treaties*, 1912, 7 A.J.I.L. 153 (1913); *Clark v. Allen*, 331 U.S. 503 (1947); Karnuth v. United States, 279 U.S. 231 (1929); *Techt v. Hughes*, 128 N.E. 185, 191 (N.Y.), *cert. denied*, 254 U.S. 643 (1920); 2 OPPENHEIM, INTERNATIONAL LAW sec. 99(4)-(5) (Lauterpacht, ed., 7th ed. 1952); Davis, *The Effects of War Upon International Conventions and Private Contracts*, 1927 Proc. Am. Soc'y Int'l L. 124-29; Fitzmaurice, *The Judicial Clauses of the Peace Treaties*, 73 R.C.A.D.I. 255, 307-17 (1948); Harvard Draft Convention on the Law of Treaties, Art. 35(b), 29 A.J.I.L. Supp. 657, 664-65 (1935); Hurst, *The Effect of War on Treaties*, 2 Brit. Y.B. Int'l L. 37 (1921); Lenoir, *The Effect of War on Bilateral Treaties, with Special Reference to Reciprocal Inheritance Treaty Provisions*, 34 Geo. L.J. 129 (1946); Sharp, *supra* n. 2, at 23-24.

83. Institut de Droit International, *supra* n. 82, Arts. 3-4, 61(2) Annuaire at 280; *id.*, *Regulations Regarding the Effect of War on Treaties*, Art. 5, 7 A.J.I.L. 154; 5 HACKWORTH, DIGEST (1943) sec. 513, at 383-84; 2 OPPENHEIM, *supra* n. 82, *sec.* 99(2), 99(5); Fitzmaurice, *Judicial Clauses*, *supra* n. 82, at 312; Harvard Draft Convention, *supra* n. 82, Art. 35(a), 29 A.J.I.L. Supp. at 664; Hurst, *supra* n. 82, at 42.

84.U.N. Charter, Art. 2(2); Vienna Convention, *supra* n. 43, Art. 26; BROWNLIE, *supra* n. 30, at 616; I.L.C. Report, *supra* note 80, at 211; KELSEN, PURE THEORY OF LAW (Knight trans. 1967) at 216; MCNAIR, *supra* n. 80, at 493-505; Restatement (Third), *supra* n. 30, *sec.* 321; Friedmann, *The Uses of "General Principles" in the Development of International Law*, 57 A.J.I.L. 279, 286-87 (1963); Harvard Draft Convention, *supra* n. 82, Art. 20, 29 *id.*, Supp. at 661; Hassan, *Good Faith in Treaty Formation*, 21 Va. J. Int'l L. 443, 480-81 (1981); *Nicaragua Case*, *supra* n. 63, 1986 I.C.J. at 135-42. ELIAS, *supra* n. 63, at 43-44, says that *pacta sunt servanda* cannot be a *jus cogens* principle, as KELSEN, *supra*, would argue, because it is subject to exceptions, *e.g.*, fundamental change of circumstances.

85. Vienna Convention, *supra* n. 43, Art. 18; *see also supra* n. 43 and accompanying text.

86. *See generally* Symposium, *State Succession in the Former Soviet Union and in Eastern Europe*, 33 Va. J. Int'l L. 253 (1993); Walker, *Integration and Disintegration in Europe: Reordering the Treaty Map of the Continent*, 6 Transnat'l Law. 1 (1993).

87. For an example, *see supra* nn. 31 & 40 and accompanying text.

88. I.C.J. Statute, Arts. 38, 59; Restatement (Third), *supra* n. 30, *secs.* 102-03; *see also supra* nn. 49 & 60 and accompanying text.

89. "In at least one respect [its terms] are more restrictive than customary international law, namely in the case of the territorial sea." 2 O'CONNELL, *supra* n. 19, at 994; Charney, *Marine Environment*, *supra* n. 47, at 887.

90. S. Doc. 103-39, *supra* n. 40, *reprinted in* 6 U.S. Dep't St. Dispatch Supp. No. 1, at 19.

91. *E.g.*, 1982 LOS Convention, *supra* n. 39, Arts. 1(1)(4)-1(1)(5), 21, 23, 39, 41, 43, 54, 56(1)(b)(iii), 60(3), 63, 66-67, 94(7), 116, 123(b), 145-47, 155(2), 162, 165.

92. *Id.*, Art. 192; *compare* Stockholm Declaration, *supra* n. 52, Principle 7; *see also* 4 NORDQUIST, *supra* n. 20, at 36-43. The U.S. Department of Defense and the Navy view Art. 236 of the Convention and Part XII "as a mandate to ensure responsibility for environmentally sound practices." Schachte, *The Value of the 1982 U.N. Convention on the Law of the Sea: Preserving Our Freedoms and Protecting the Environment*, 23 Ocean Devel. & Int'l L. 55, 61 (1992).

93. *See generally* 2 NORDQUIST, *supra* n. 51, *para.* 1.23, arguing for an evolving conceptual definition; 4 NORDQUIST, *supra* n. 20, para. 192.11(a); Tolbert, *Defining the Environment*, *in* ENVIRONMENTAL PROTECTION, *supra*, n. 2 at 259.

94. S. Doc. 103-29, *supra* n. 40, *reprinted in* 6 U.S. Dep't St. Dispatch Supp. No. 1, at 19.

95. 1982 LOS Convention, *supra* n. 39, Art. 1(1)(4); *see also* 2 NORDQUIST, *supra* n. 50, paras. 1.1-1.15, 1.22-1.24, 1.26-1.31; The LOS definition means that the environment is both human and nature centered. *See* Tolbert, *supra* n. 93, at 259.

96. 1982 LOS Convention, *supra* n. 39, Art. 193; *compare* Stockholm Declaration, *supra* n. 52, Principle 12, 11 *id.* at 1419; *see also* 4 NORDQUIST, *supra* n. 20, at 45-49. Vallarta, *Protection and Preservation of the Marine Environment and Marine Scientific Research at the Third United Nations Conference on the Law of the Sea*, in Symposium, *The Law of the Sea: Where Now*, 46 L. & Contemp. Probs. 146, 149 (1983) said the duty to preserve and protect the environment is a *jus cogens* norm.

97. "Significant" is not stated as part of the duty in this part of the Convention, but other Convention provisions, regional agreements, and commentators have added terms like "major," "serious," "significant" or "substantial." *See, e.g.*, 1982 LOS Convention, *supra* n. 39, Arts. 94(7), 233; Kuwait Protocol, *supra* n. 53, Art. 1(2); Red Sea Protocol, *supra* n. 54, Art. 1(2); Restatement (Third), *supra* n. 30, secs. 601(1)(b)-601(3), 603(1)(a), 603(2); Low & Hodgkinson, *supra* n. 2, at 422-23. Such sources, when combined, can evidence custom. BROWNLIE, *supra* n. 30, at 5.

98. 1982 LOS Convention, *supra* n. 39, Art. 194(1); *see also* Restatement (Third), *supra* n. 30, sec. 603(2). The "prevention" theme was partly derived from High Seas Convention, *supra* n. 31, Arts. 24-25, and limitation to "capabilities" from Stockholm Declaration, *supra* n. 52, Principle 7; 4 NORDQUIST, *supra* n. 20, paras. 194.1, 194.10(b). Diligent prevention and control are probably binding norms. *Cf.* BIRNIE & BOYLE, *supra* n. 28, at 95.

99. 1982 LOS Convention, *supra* n. 39, Art. 194(2); Restatement (Third), *supra* n. 30, §§ 601(1)(b), 601(2), 603(1)(a), 603(2).

100. 4 NORDQUIST, *supra* n. 20, para. 194.10(e).

101. Dumping is defined in 1982 LOS Convention, *supra* n. 39, Art. 1(1)(5); *see also* 2 NORDQUIST, *supra* n. 51, paras. 1.1-1.15, 1.24, 1.26-1.31.

102. 1982 LOS Convention, *supra* n. 39, Art. 194(3); *compare* Protocol of 1978 Relating to International Convention for Prevention of Pollution from Ships, 1973, Feb. 17, 1978, T.I.A.S. No. —, 1340 U.N.T.S. 61, *incorporating by reference and amending* Convention for Prevention of Pollution from Ships, Nov. 2, 1973, 1340 U.N.T.S. 184 [hereinafter collectively MARPOL 73/78], Art. 2(2), Annex II, 1340 U.N.T.S. at 184, 233, defining "harmful substance," not explained in the 1982 Convention. 4 NORDQUIST, *supra* n. 20, para. 194.10(j). Art. 194(3) is broader in sweep than MARPOL 73/78. The language in *id.*, Art. 2(2), defining pollution, is the same as 1982 LOS Convention, *supra*, Art. 1(1)(4). MARPOL 73/78 parties represent 92 percent of the Earth's merchant tonnage. BOWMAN & HARRIS, MULTILATERAL TREATIES (11th Cum. Supp. 1995) at 295. It is a fair assumption that its terms represent customary law; therefore, similar terms used in similar circumstances in the 1982 LOS Convention also restate custom. BROWNLIE, *supra* n. 30, at 5. The injury must be significant, however. *See supra* n. 97 and accompanying text.

103. 1982 LOS Convention, *supra* n. 39, Art. 194(4). This restates a customary norm. 4 NORDQUIST, *supra* n. 20, para. 194.10(n); Restatement (Third), *supra* n. 30, sec. 601 & cmt. a, r.n.1, citing *inter alia* Draft Articles on State Responsibility, Art. 19(3)(d), *Report of the International Law Commission*, 2(2) Y.B. Int'l L. Comm'n 96, 31 U.N. G.A.O.R., Supp. No. 10, at 226 (1976).

104. 1982 LOS Convention, *supra* n. 39, Art. 194(5). Ice-covered areas, governed by *id.*, Art. 234, are an example of such sensitive environments. 4 NORDQUIST, *supra* n. 20, para. 194.10(o), noting that International Law Commission, *Report on the Work of the 42d Session*, ch. IV, para. 312, sec. C, item 2, Art. 22, *Commentary*, para. (2), 45 U.N. G.A.O.R., Supp. No. 10 (1990), *reprinted in* 2(2) Y.B. Int'l L. Comm'n 57 (1990) defines "ecosystem" as "an ecological unit . . . of living and non-living components that are interdependent and function as a community." 1982 LOS Convention, *supra*, does not define the term.

105. 1982 LOS Convention, *supra* n. 39, Art. 195; *see also* 4 NORDQUIST, *supra* n. 20, paras. 195.2, 195.6.

106. 1982 LOS Convention, *supra* n. 39, Art. 196.

107. 4 NORDQUIST, *supra* n. 20, paras. 196.1, 196.7(a).

108. 1982 LOS Convention, *supra* n. 39, Art. 197, partly based on Stockholm Declaration, *supra* n. 52, Recomm. 92, 11 *id.* at 1456-57, and Convention on Prevention of Marine Pollution by Dumping of Wastes and Other Matter,

Dec. 29, 1972, 26 U.S.T. 2403, 1046 U.N.T.S. 120 [hereinafter London Dumping Convention]. 4 NORDQUIST, *supra* n. 20, para. 197.3.

109. 1982 LOS Convention, *supra* n. 39, Arts. 200-01; *see also* 4 NORDQUIST, *supra* n. 20, paras. 200.1-200.6, 201.1-201.7; Restatement (Third), *supra* n. 30, sec. 603(2). Freedom of the high seas includes the right to conduct scientific research, subject to coastal State continental shelf rights. 1982 LOS Convention, *supra*, Art. 87(1). It is generally accepted as a customary right. 1 BROWN, *supra* n. 33, at 429.

110. 1982 LOS Convention, *supra* n. 39, Arts. 202-06, based in part on Stockholm Declaration, *supra* n. 52, Principles 16, 21, 11 *id.* at 1419-20; National Environmental Policy Act, 42 U.S.C. sec. 4332 (1994); 4 NORDQUIST, *supra* n. 20, paras. 201.1-202.6(b), 203.1-203.5(c), 204.1-204.8(d), 205.1-205.6(c), 206.1-206.6(c).

111. 1982 LOS Convention, *supra* n. 39, Art. 198. "IMO is as important in its particular fields of interest—maritime safety and protection of the marine environment—as is the UNEP at global level." BIRNIE & BOYLE, *supra* n. 28, at 53.

112. 4 NORDQUIST, *supra* n. 20, para. 198.1; *see also* Restatement (Third), *supra* n. 30, sec. 601, cmt. e & r.n.4, citing *inter alia* Memorandum of Intent Concerning Transboundary Air Pollution, Aug. 5, 1980, Can.-U.S., 32 U.S.T. 2521; 1274 U.N.T.S. 235.

113. This "to some extent anticipates" 1982 LOS Convention, *supra* n. 39, Art. 221. 4 NORDQUIST, *supra* n. 20, para. 198.1.

114. 1982 LOS Convention, *supra* n. 39, Art. 199; *see also* 4 NORDQUIST, *supra* n. 20, noting that High Seas Convention, *supra* n. 31, Art. 25(2), requires countries to cooperate with competent international organizations in measures to prevent radioactive materials contamination of the seas or airspace. The 1982 Convention, *supra*, covers a wider spectrum of required cooperation.

115. This "to some extent anticipates" 1982 LOS Convention, *supra* n. 39, Art. 221. 4 NORDQUIST, *supra* n. 23, para. 198.1.

116. 1982 LOS Convention, *supra* n. 39, Arts. 207(1)-207(2), 208(1-208(3), 209(2), 211(2); *see also* 4 NORDQUIST, *supra* n. 20, paras. 207.7(a)-207.7(b), 208.10(a)-208.10(d), 209.10(a), 211.15(f); Restatement (Third), *supra* n. 30, sec. 603(1)(a). As *id.* r.n. 7 shows, the United States, like many nations, has marine pollution legislation which may require amendment to align it with Convention standards. Such laws, if enacted worldwide, can evidence customary norms. BROWNLIE, *supra* n. 30, at 5.

117. 4 NORDQUIST, *supra* n. 20, para. 208.10(a).

118. 1982 LOS Convention, *supra* n. 39, Arts. 210(1)-210(3), 210(6); *see also* 4 NORDQUIST, *supra* n. 20, para. 210.11(b); Restatement (Third), *supra* n. 30, § 603. National laws, such as those in *id.*, r.n.7, can evidence custom. BROWNLIE, *supra* n. 30, at 5.

119. 1982 LOS Convention, *supra* n. 39, Art. 210(5); *see also* 4 NORDQUIST, *supra* n. 20, paras. 210.11(c)-210.11(g), noting that London Dumping Convention, *supra* n. 108, Art. 4, requires prior approval.

120. 4 NORDQUIST, *supra* n. 20, para. 210.11(g) & n.14, citing *inter alia* International Law Commission, *Report on the Work of Its Thirty-First Session: Draft Articles on State Responsibility*, Art. 32, U.N. Doc. A/34/194 (1979), *reprinted in* 18 I.L.M. 1557, 1568, 1576 (1979), stating that these are not defenses if the offending country contributes to the occurrence of the situation of material responsibility. *See also* Commentary to Draft Articles on State Responsibility in International Law Commission, *Report on the Work of Its Thirty-First Session*, U.N. Doc. A/34/10 & Corr. 1 (1979), *reprinted in* 2(2) Y.B. Int'l L. Comm'n 122-36 (1979). The practical experience is that jettisoned fuel dissipates quickly in the atmosphere and does not present an emergency. 4 NORDQUIST, *supra*, para. 210.11(g) & n.14. Restatement (Third), *supra* n. 30, sec. 603, cmt. g & r.n.8 discuss aircraft noxious and noise emissions.

121. 1982 LOS Convention, *supra* n. 39, Arts. 18(2), 39(1)(c); *see also* Territorial Sea Convention, *supra* n. 31, Art. 14(3); COLOMBOS, *supra* n. 20, § 181 (customary law); 2 O'CONNELL, *supra* n. 19, at 853-858 (same). As NWP 9A, *supra* n. 30, paras. 1.4.1, 2.3.1, 3.2, 3.2.2, 7.3.2, 7.3.7, demonstrate, this customary law of the sea norm follows different principles during armed conflict. *See also* Hague Convention (VI) Relating to Status of Enemy Merchant Ships at Outbreak of Hostilities, Oct. 18, 1907, Art. 2, 205 Consol. T.S. 305, 312 [hereinafter Hague VI]; Hague Convention (XIII) Concerning Rights & Duties of Neutral Powers in Naval War, Oct. 18, 1907, Art. 21, 36 Stat. 2415, 2431 [hereinafter Hague XIII]; Convention on Maritime Neutrality, Feb. 28, 1928, Art. 17, 47, *id.* 1989, 1993, 135 L.N.T.S. 187, 204; Nyon Arrangement, Sept. 14, 1937, Art. 5, 181 L.N.T.S. 135, 139; Stockholm Declaration Regarding Similar Rules of Neutrality, May 27, 1938, Arts. 4, 7, 188 *id.* 294, 299, 301, 305, 307, 311, 313, 319, 321, 325, 327; Oxford Manual, *supra* n. 30, Arts. 31, 34, 37, *reprinted in* LAW OF NAVAL WARFARE, *supra* n. 30, at 290, 292-93; San Remo Manual, *supra* n. 30, paras. 21 (Hague XIII rule); 136, *Commentary* 136.2 (Hague VI considered to be in disuetude); Commentary 168.6 (Hague XIII rule); de Guttry, *Commentary*, in LAW OF NAVAL WARFARE, *supra* at 102, 109 (Hague VI of limited usefulness); Schindler, *Commentary*, in *id.*, *supra*, at 211, 221 (Hague XIII restates custom, with minor exceptions). This is yet another example of the "other rules" principle in operation. *See supra* nn. 64-88 and accompanying text.

122. 1982 LOS Convention, *supra* n. 39, Arts. 207(3) (land-based pollution), 207(4) (seabed activities subject to national jurisdiction); *see also* U.N. Charter, Art. 52.

123. 1982 LOS Convention, *supra* n. 39, Arts. 207(4), 208(5), 209(1), 210(4), 211(1), 212(3).

124. *Id.*, Arts. 211(3)-211(4); *see also* Restatement (Third), *supra* n. 30, sec. 604(3). The Convention's negotiating history demonstrates that under it coastal States cannot require warships to give notice or get prior consent before entering the territorial sea on innocent passage. *See generally* ROACH & SMITH, EXCESSIVE MARITIME CLAIMS (Nav. War C. Int'l L. Stud., v. 66, 1994) at 154-60; 1 BROWN, *supra* n. 33, at 64-72. For principles governing innocent passage, which apply equally to merchantmen and warships, except that submarines must navigate on the surface and show their flag, *see generally* 1982 LOS Convention, *supra*, Arts. 17-26, 45, 52(2). The Ports and Waterways Safety Act, 33 U.S.C. secs. 1221-36 (1994), is a typical national statute regulating enforcement of safety and environmental measures in the territorial sea. A worldwide pattern of these kinds of laws can evidence customary standards. BROWNLIE, *supra* n. 30, at 5.

125. These rules cannot apply to foreign ship design, construction, manning or equipment unless they effectuate generally accepted international rules or standards. 1982 LOS Convention, *supra* n. 39, Arts. 19(2)(h), 21; *see also* 2 NORDQUIST, *supra* n. 51, paras. 19.1-19.11, 21.1-21.12, noting some States' continued opposition to warships' right of innocent passage and linkage between 1982 LOS Convention, Arts. 21(1)(f), and 192, *supra*. The Art. 19(2) list is exclusive, although *id.*, Art. 19(2)(l), ("any other activity not having a direct bearing on practice") could be read expansively. *See* 2 NORDQUIST, *supra*, para. 19.11, citing Uniform Interpretation of Rules of International Law Governing Innocent Passage, Sept. 23, 1989, USSR-U.S., Art. 3, *reprinted in* 28 I.L.M. 1444, 1446 (1989) [hereinafter Uniform Interpretation], noting Russia has accepted this statement; NWP 9A, *supra* n. 30, para. 2.3.2.1. Aside from a special rule for fishing craft, Territorial Sea Convention, *supra* n. 31, Arts. 4-5, uses a general reasonableness rule to define innocent passage. *See also* Restatement (Third), *supra* n. 30, sec. 513 & cmts. a-e, h-i, & r.n.1-2, 6. For analysis of "other rules of international law" clauses, *see supra* nn. 64-88 and accompanying text.

126. These ships must carry special documentation too. 1982 LOS Convention, *supra* n. 39, Arts. 22(2), 23; *see also* 4 NORDQUIST, *supra* n. 20, paras. 22.1-22.9, 23.1-23.9, noting link with 1982 LOS Convention, *supra*, Arts. 24(1)(b), 25(3), 227; Restatement (Third), *supra* n. 30, sec. 513(2)(b) & cmt. d. Uniform Interpretation, *supra* n. 125, Arts. 5, 20, clarifies the Russian text of the 1982 LOS Convention, *supra*, Art. 22, saying that coastal States may designate sea lanes and traffic separation schemes "where necessary to protect the safety of navigation." 2 NORDQUIST, *supra* n. 51, para. 22.9.

127. 1982 LOS Convention, *supra* n. 39, Art. 24; *see also* 2 NORDQUIST, *supra* n. 51, paras. 24.1-24.8, noting parallel language ("form or fact") in 1982 LOS Convention, *supra* n. 39, Arts. 25(3), 42(2), 52(2), 227; Restatement (Third), *supra* n. 30, sec. 513(2) & cmt. c; Clingan, *Freedom of Navigation in a Post-UNCLOS III Environment*, in Symposium, *supra* n. 96 at 107, 111.

128. 1982 LOS Convention, *supra* n. 39, Art. 25; *see also* 2 NORDQUIST, *supra* n. 51, *paras.* 25.1-25.9, noting that Uniform Interpretation, *supra* n. 125, applies to Art. 25, taken directly from Territorial Sea Convention, *supra* n. 31, Arts. 16(1)-16(3); Restatement (Third), *supra* n. 30, sec. 513(2)(a) & cmt. c, which say there should be no discrimination among different countries' vessels during temporary suspension; it should apply to ships of all flags.

129. 2 NORDQUIST, *supra* n. 51, para. 25.1, citing Territorial Sea Convention, *supra* n. 31, Art. 16(3).

130. *See generally* 2 NORDQUIST, *supra* n. 51, paras. 25.1-25.9; Restatement (Third), *supra* n. 30, secs. 513, cmt. c; 601-04 state nothing to the contrary.

131. U.N. Charter, Art. 51; *see also supra* n. 72 and accompanying text.

132. 1982 LOS Convention, *supra* n. 39, Arts. 27-18; see also Restatement (Third), *supra* n. 30, secs. 457, r.n.7; 461, cmt. e; 513(2)(b) & cmt. c, e, h, & r.n. 2.

133. 1982 LOS Convention, *supra* n. 39, Art. 2(3); *see also* Territorial Sea Convention, *supra* n. 31, Art. 1(2); *supra* nn. 64-88 and accompanying text.

134. In the case of archipelagic sea lanes, passage is subject to the right of an archipelagic State, as defined in the Convention, to designate sea lanes and air routes through its archipelagic waters and adjacent territorial sea. 1982 LOS Convention, *supra* n. 39, Arts. 45-46, 52-53; *compare id.*, Art. 25(3). Head Harbor Passage through Canadian waters to Passamaquoddy Bay, off Maine, is an example of this kind of strait. ROACH & SMITH, *supra* n. 124, at 181; Alexander, *International Straits*, in LAW OF NAVAL OPERATIONS, *supra* n. 30, at 91, 99. Innocent passage rules also apply to straits between an island of a State and that State's mainland, if a route exists seaward of the island through the high seas or an EEZ that is of similar convenience with navigational and hydrographic characteristics. 1982 LOS Convention, *supra*, Art. 38(1). The Straits of Messina, off Italy, is an example. ROACH & SMITH, *supra* at 181; Alexander, *International Straits*, in LAW OF NAVAL OPERATIONS, *surpa* n. 30, at 100-01. Few countries qualify as archipelagic States under the Convention. *See generally id.* at 131-32, citing 1982 LOS Convention, *supra*, Arts. 46-47, 49, 52-53; *see also* 2 NORDQUIST, *supra* n. 51, paras. 46.1-46.6(f), 47.147.9(m), 49.1-49.9(d), 52.1-52.7, 53.1-53.9(n). Similar construction should be given 1982 LOS Convention, *supra*, Art. 52(2), and its authority to temporarily suspend innocent passage through archipelagic waters. As for territorial sea innocent passage, which has broader application potential, *see also supra* n. 125-31 and accompanying text.

135. 1982 LOS Convention, *supra* n. 39, Art. 53; *see also* 2 NORDQUIST, *supra* n. 51, paras. 53.1-53.9(n); Restatement (Third), *supra* n. 30, sec. 513(4) & cmt. k, r.n.4.

136. 1982 LOS Convention, *supra* n. 39, Arts. 38(1), 45(1)(b), 52-54; *id.*, Art. 54 incorporates by reference *id.*, Arts. 39-40, 42, 44; *see also* 2 NORDQUIST, *supra* n. 51, paras. 54.1-54.7(b) and *supra* nn. 125-31 and accompanying text. Most commentators agree that Convention rules on nonsuspendable straits passage reflect custom. *See generally*, Clingan, *supra* n. 127, at 117; Harlow, *Comment*, in Symposium, *supra* n. 96, at 125, 128; Oxman, *Regime of Warships*, *supra* n. 67, at 851-61; Schachte, *International Straits and Navigational Freedoms*, 24 Ocean Devel. & Int'l L. 179, 181-84 (1993).

137. 1982 LOS Convention, *supra* n. 39, Art. 233, incorporating by reference *id.*, Arts. 42(1)(a)-(b), 236, would appear to apply, strictly speaking, to straits transit passage regimes because of references to Art. 42; the straits innocent passage regime, and provisions governing territorial sea innocent passage have no similar intervention provisions, although such might be inferred from coastal State authority to enact environmental laws that might include authority to intervene. Warships, naval auxiliaries, etc., have sovereign immunity as in the case of transit passage. *See generally id.*, Arts. 17-32, 45, 236; S. Doc. 103-39, *reprinted in* 6 U.S. Dep't St. Dispatch Supp. No. 1, at 11-15, 23, saying that by extension these principles apply to archipelagic sea lanes passage and straits passage. The U.S. Navy has taken the position that a straits passage regime also applies to approaches to straits. The Navy position that warships, operating in normal mode (*i.e.* submarines traversing these straits submerged), may employ formation steaming and conduct air operations as incidental to normal navigation practices, so long as there is no threat to the coastal State(s), is consistent with the transit passage regime. Alexander, *supra* n. 134 in LAW OF NAVAL OPERATIONS, *supra* n. 30, at 92; Clove, *Submarine Navigation in International Straits: A Legal Perspective*, 39 Nav. L. Rev. 103, 105 (1990); Schachte, *International Straits*, *supra* n. 136, at 184-86, *but see* Lowe, *Commander's Handbook*, *supra* n. 67, in LAW OF NAVAL OPERATIONS, *supra* on naval operations in transit straits. If this is accepted as practice, the environmental protection regime appurtenant to straits passage applies to this area too. The issue of straits passage for belligerents illustrates the interface of the LOS and the LOAC preserved by the "other rules" clauses of the law of the sea. *See generally* NWP 9A, *supra* n. 30, paras. 2.3.3-2.3.3.2, 2.5.1.1; San Remo Manual, *supra* n. 30, paras. 23-33; Mayama, *The Influence of the Straits Transit Regime on the Law of Neutrality at Sea*, 26 Ocean Devel. & Int'l L. 1 (1995); *supra* nn. 64-88 and accompanying text.

138. 1982 LOS Convention, *supra* n. 39, Art. 31; *compare* Territorial Sea Convention, *supra* n. 31, Art. 24, which *inter alia* provides for a 12-mile zone. The contiguous zone's outer limit means that States asserting a territorial sea less than the full extent provided by the 1982 Convention, 12 miles, or under customary law for States party to the 1958 Conventions, may declare a contiguous zone up to the limits permitted by whichever convention is in force for them. *See also* Restatement (Third), *supra* n. 30, sec. 511(b) & cmt. k.

139. *See generally* 2 NORDQUIST, *supra* n. 51, paras. 33.1-33.8(i).

140. 1982 LOS Convention, *supra* n. 39, Arts. 303(1)-303(2) provides:

> 1. States have the duty to protect objects of an archeological and historical nature found at sea and shall co-operate for this purpose.
>
> 2. . . . [T]o control traffic in such objects, the coastal State may, in applying Article 33, presume that their removal in the contiguous zone . . . without its approval would result in an infringement within its territory or territorial sea of the laws and regulations referred to in that article.

141. *See generally* 5 NORDQUIST, *supra* n. 47, paras. 303.1-303.10.

142. Art. 303 also does not affect identifiable owners' rights, salvage law or other admiralty rules, or cultural exchange laws and practices. 1982 LOS Convention, *supra* n. 39, Arts. 303(3)-03(4). Under traditional admiralty law, shipwrecks and objects found at sea are a finder's property, unless its national law or the law of the salvor provides otherwise. *See generally* Restatement (Third), *supra* n. 30, sec. 521, r.n.6; SCHOENBAUM, *supra* n. 22, ch. 14; S. Doc. 103-39, *supra* n. 40, 6 U.S. Dep't St. Dispatch, Supp. No. 1, at 51, citing U.S. legislation that may alter these rules. Title to warships or government aircraft is never lost until a flag State officially abandons or relinquishes it. If an aircraft or ship is captured, title vests then in the captor State. NWP 9A, *supra* n. 30, paras. 2.1.2.2-2.1.2.3, 8.2.1; *see also* Agreement Concerning Wreck of *C.S.S. Alabama*, Oct. 3, 1989, Fr.-U.S., T.I.A.S. No. 11687.

143. *See supra* nn. 64-88 and accompanying text.

144. 5 NORDQUIST, *supra* n. 47, para. 303.10.

145. 1982 LOS Convention, *supra* n. 39, Art. 149.

146. *Id.* *supra* n. 39, Arts. 55, 56(1)(a), 56(1)(b)(iii)-56(c), 57-58, defining the EEZ as extending outward 200 nautical miles from territorial sea baselines and providing that coastal States have "sovereign rights for . . . conserving and managing their natural resources, . . . living or non-living, of the waters subjacent to the sea-bed and of the sea-bed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, [*e.g.*] . . . production of energy from the water, currents and winds; [and] . . . jurisdiction as provided for in . . . this Convention [for] . . . protection and preservation of the marine environment; [and] other rights and duties provided for in this Convention." *See also id.*, Art. 60, giving the coastal State exclusive rights and jurisdiction over artificial islands and other EEZ installations. *Id.*, Arts. 61-72, expand upon standards for conservation and use of living resources, stocks occurring within two or more countries' EEZs, various kinds of sea life, and rights of landlocked and geographically disadvantaged States. *Id.*, Art. 73, declares standards for enforcing coastal State EEZ laws. *See also* 2 NORDQUIST, *supra* n. 20, paras. 55.1-55.11(d), 56.1-56.11(e), 57.1-57.8(b), 58.1-58.10(f), 60.1-60.15(m), 61.1-61.12(k),

62.1-62.16(l), 63.1-63.12(f), 64.1-64.9(f), 65.1-65.16(i), 66.1-66.9(g), 67.1-67.8(e), 68.1-68.5(b), 69.1-69.17(h), 70.1-70.11(d), 71.1-71.9(c), 71.1-71.10(b), 73.1-73.10(h); S. Doc. 103-39, 6 U.S. Dep't St. Dispatch Supp. No. 1, at 25-27. As of 1992, 86 States had EEZs; 20 more claimed fishing zones. The EEZ "is now widely considered to be a part of general international law." 2 NORDQUIST, *supra*, para. V.33; Restatement (Third), *supra* n. 30, sec. 514, cmt. a. While *id.* sec. 514(1) generally follows Convention criteria as to EEZ sovereignty and jurisdiction, *Source Note* says "authority" is used instead of "jurisdiction" because of the Restatement's different characterization of jurisdiction in other contexts; 1982 LOS Convention, *supra*, Arts. 55, 58, specifically referring to *id.*, Arts. 87-115, which declare *inter alia* high seas freedoms of navigation which apply to the EEZ. States therefore cannot exclude warships on environmental grounds from their EEZ.

147. 1982 LOS Convention, *supra* n. 39, Art. 211(5). A special qualification to this general rule is *id.*, Art. 234, providing that coastal States may adopt and enforce nondiscriminatory laws for preventing, reducing and controlling pollution from ships in ice-covered areas to the limits of their EEZs where particularly severe climatic conditions and ice create obstructions or exceptional navigational hazards, "and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance." Such laws must have "due regard to navigation and the protection and preservation of the marine environment. . . ." Territorial, and hence territorial sea, claims are frozen as to Antarctica by the Antarctic Treaty, *supra* n. 68, Art. 4. For now, and unless there is a new Ice Age, Art. 234 only applies to Arctic Sea rim States, *e.g.*, the United States. S. Doc. 102-39, 6 U.S. Dep't St. Dispatch Supp. No. 1, at 24, noting that key States concerned, *i.e.* Canada, the USSR and the United States, negotiated Art. 234 to provide the basis for implementing provisions for commercial and private vessels in the 1970 Canadian Arctic Waters Pollution Prevention Act consistent with Art. 234 and other relevant Convention provisions while protecting "fundamental U.S. security interests" in exercising navigational rights and freedoms throughout the Arctic. *See also* 2 O'CONNELL, *supra* n. 19, at 1022-25.

148. *See supra* nn. 96, 100, 119 and accompanying text for EEZ analysis. *See also* 1982 LOS Convention, *supra* n. 39, Arts. 76-78, 80, declaring that the shelf can extend outward the same distance, 200 nautical miles, as the EEZ, along the ocean bottom, or to the edge of the continental margin, whichever is greater, but not over 350 miles; 2 NORDQUIST, *supra* n. 51, paras. 76.1-76.18(m), 77.1-77.7(d), 78.1-78.8(d), 80.1-80.9, noting adaptation of Continental Shelf Convention, *supra* n. 31, Arts. 2-5; Restatement (Third), *supra* n. 30, sec. 515.

149. 1982 LOS Convention, *supra* n. 39, Arts. 55, 56(1)(b)(iii), 56(2), 58(3), 60(3), 60(7), 78-80, also employing a "must not infringe - unjustifiable interference" formula for shelf and high seas rights interfaces and a "reasonable exploration" - "may not impede" rule for interface of shelf and submarine cable and pipeline rights. *See also* 2 NORDQUIST, *supra* n. 51, paras. 56.11(e)-56.11(f), 58.10-58.10(f), 60.15(f), 60.15(j), 66.9(d), 78.8(c), 79.8(e), 80.9; Restatement (Third), *supra* n. 30, secs. 514, cmt. e; 515(2). "Due regard" or similar phrases also appear in other provisions of the 1982 LOS Convention, *supra*, Art. 87(2), (due regard for others' high seas rights and freedoms, and for Area activities), and in Continental Shelf Convention, *supra* n. 31, Arts. 4-5, ("reasonable measures . . . , may not impede"; no "unjustifiable interference with navigation, fishing," etc.); High Seas Convention, *supra* n. 31, Arts. 2, 26(2) ("reasonable regard" for others' high seas freedoms); Territorial Sea Convention, *supra* n. 31, Art. 19(4) (balancing navigation interests with right of arrest for crimes committed in the territorial sea).

150. 1982 LOS Convention, *supra* n. 39, Arts. 58(1)-58(2), 78, referring to *id.*, Arts. 86-115; *see also supra* nn. 64-88 and accompanying text for "other rules" analysis.

151. 4 NORDQUIST, *supra* n. 20, para. 211.15(b).

152. 1982 LOS Convention, *supra* n. 39, Arts. 213-14, 216, 222; *see also* 4 NORDQUIST, *supra* n. 20, paras. 213.1-213.7(f), 214.1-214.7(c), 216.1-216.7(d), 222.1-222.8.

153. Restatement (Third), *supra* n. 30, sec. 603; *see also supra* n. 97 and accompanying text.

154. 1982 LOS Convention, *supra* n. 39, Arts. 217-20, 223-24, 226-31, expanding on rules in the navigational articles, *id.*, Arts. 21(1)(f), 28(2), 56(1)(b)(iii), 56(3), 60(1), 80; *see also* 4 NORDQUIST, *supra* n. 20, paras. 217.1-217.8(j), 218.1-218(9)(h), 219.1-219.8(d), 220.1-220.11(n), 223.1-223.9(c), 224.1-224.7(e), 226.1-226.11(e), 227.1-227.7, 228.1-228.11(h), 229.1-229.5, 230.1-230.9(c), 231.1-231.9(c); Restatement (Third), *supra* n. 30, secs. 457, r.n.7; 461, cmt. e; 512.

155. 1982 LOS Convention, *supra* n. 39, Art. 225; *see also* 4 NORDQUIST, *supra* n. 20, paras. 225.1-225.9; Restatement (Third), *supra* n. 30, sec. 513, cmt. e.

156. 1982 LOS Convention, *supra* n. 39, Arts. 232, 235; *see also* 4 NORDQUIST, *supra* n. 20, paras. 232.1-232.6(c), 235.1-235.10(g); Restatement (Third), *supra* n. 30, sec. 604, r.n.3. Article 235 was derived from the Stockholm Declaration, *supra* n. 52, Principle 56; 4 NORDQUIST, *supra*, para. 235.1.

157. 1982 LOS Convention, *supra* n. 39, Art. 221; Charney, *supra* n. 47, at 892 n.79; *see also* 4 NORDQUIST, *supra* n. 20, paras. 221.1-221.9(h); Restatement (Third), *supra* n. 30, sec. 603, r.n. 3, noting similar provisions in 1969 Intervention Convention, *supra* n. 22, Art. 1, and 1973 Intervention Protocol, *supra* n. 22, to which numerous countries are party. TIF, *supra* n. 32, at 385; Declaration of Principles Governing the Seabed and the Ocean Floor, and the Subsoil Thereof, Beyond the Limits of National Jurisdiction, U.N.G.A. Res. 2749 (1970), para. 13(b), *reprinted in* 10 I.L.M. 220, 223 (1971).

158. *Cf.* BIRNIE & BOYLE, *supra* n. 28, at 286; BROWNLIE, *supra* n. 30, at 5; Restatement (Third), *supra* n. 30, sec. 102(3), cmts. f, i, r.n.5.

159. *See supra* nn. 4-6 and accompanying text.

160. *See supra* nn. 64-88 and accompanying text.

161. *See supra* nn. 10-11, 13-16 and accompanying text.

162. *Compare* 1982 LOS Convention, *supra* n. 39, Art. 236, *with id.*, Arts. 42(5), 96, 110(1); *see also* High Seas Convention, *supra* n. 31, Arts. 8(1); 3 NORDQUIST, *supra* n. 67, paras. 95.1-96.6(c); 4 *id*, *supra* n. 20, paras. 236.1-236.6(f). Warship and naval auxiliary immunity is an accepted rule of international law. 3 *id.*, para. 95.1; 4 *id.*, para. 236.1.

163. S. Doc. 103-39, *supra* n. 40, 6 U.S. Dep't St. Dispatch Supp. No. 1, at 24.

164. *E.g.*, Convention on Protection of the Environment, Feb. 19, 1974, Arts. 1, 13, 1092 U.N.T.S. 280, 296, 298, among Denmark, Finland, Norway and Sweden.

165. Kuwait Regional Convention, *supra* n. 53, Art. 14; Red Sea Convention, *supra* n. 54, Art. 14.

166. *See supra* nn. 46-49 and accompanying text. Other regional treaties say they are subject to present and future LOS conventions, *e.g.*, Convention for Protection of the Mediterranean Sea Against Pollution, Feb. 16, 1976, Art. 3(1), 1102 U.N.T.S. 27, 46, and its protocols.

167. *See supra* nn. 31, 40, 162 and accompanying text.

168. *Compare* 1982 LOS Convention, *supra* n. 39, Art. 94(4)(c), *with* High Seas Convention, *supra* n. 31, Art. 10.

169. *Compare* 1982 LOS Convention, *supra* n. 39, Art. 94(7), *with* High Seas Convention, *supra* n. 31, Art. 11(1); *see also* 3 NORDQUIST, *supra* n. 67, para. 94.8(k).

170. 1982 LOS Convention, *supra* n. 39, Arts. 122-23; 3 NORDQUIST, *supra* n. 67, at 344; *see also id*, para. 123.12(e), listing *inter alia* Kuwait Regional Convention and Red Sea Regional Convention, *supra* nn. 53-54 as among regional coordination agreements for semi-enclosed areas.

171. *Compare* 1982 LOS Convention, *supra* n. 39, Art. 87(1), *with* High Seas Convention, *supra* n. 31, Art. 2; *see also supra* n. 67 and accompanying text.

172. 1982 LOS Convention, *supra* n. 39, Art. 240(d). Indeed, *id.*, Art. 87(1)(f), declares that the right to conduct scientific research is subject to rules in Parts VI and XIII of the Convention. Part VI declares rules for the continental shelf, and Part XIII states general principles for protecting marine environment. *See supra* nn. 9, 92-123, 148-50 and accompanying text. Subject to other Convention provisions, States conducting research must give other countries reasonable opportunity to obtain information necessary to prevent and control damage to the health and safety of persons and to the marine environment. 1982 LOS Convention, *supra*, Art. 242. A research installation or equipment is subject to the same rules prescribed for conducting research. *Id.*, Art. 258. *See also* 2 O'CONNELL, *supra* n. 19, ch.26. Vessels collecting scientific data are protected from capture under the law of naval warfare during armed conflict; if they are engaged in data collection for likely military application, they are not so protected. San Remo Manual, *supra* n. 30, paras. 47(f), 136(e).

173. *Compare* 1982 LOS Convention, *supra* n. 39, Arts. 87(1)(e), 116, *with* High Seas Convention, *supra* n. 31, Art. 2; Restatement (Third), *supra* n. 30, sec. 521(2)(c).

174. S. Doc. 103-39, *supra* n. 40, 6 U.S. Dep't St. Dispatch, Supp. No. 1, at 27.

175. 1982 LOS Convention, *supra* n. 39, Art. 116, incorporating *id.*, Arts. 63(2), 64-67, 118-20; *compare* Fishery Convention, *supra* n. 31, Arts. 1-8, 13; *see also* Restatement (Third), *supra* n. 30, sec. 521, cmt. e; S. Doc. 103-39, *supra* n. 40, 6 U.S. Dep't St. Dispatch, Supp. No. 1, at 27-28, listing treaties regulating or prohibiting high seas fishing. 1982 LOS Convention, *supra*, Arts. 56, 61-73, regulate EEZ fishing. *See also* 3 NORDQUIST *supra* n. 67, paras. 116.1-116.9(g); Charney, *supra* n. 47, at 896-901.

176. 1982 LOS Convention, *supra* n. 39, Art. 87; *compare* High Seas Convention, *supra* n. 31, Art. 2, declaring that a State exercising a high seas freedom through its vessels or aircraft must have "reasonable regard" for others' concurrrent exercises of those freedoms.

177. With regard to fishing, this statement is only true with respect to the high seas where no littoral State interests, *e.g.* those in an EEZ, apply. In the latter case, high seas freedoms of navigation and overflight and other non-resource activities are preserved by the 1982 LOS Convention, *supra* n. 39.

178. 1982 LOS Convention, *supra* n. 39, Art. 87(2).

179. *Id.*, Art.1(1)(1); *see* 2 NORDQUIST, *supra* n. 51, paras. 1.1-1.19, 1.26-1.31; Restatement (Third), *supra* n. 30, sec. 523, cmt. b, declaring that *id.*, sec. 523(1)(a) recites a customary principle, that "[N]o State may claim or exercise sovereignty or sovereign or exclusive rights over any part of the sea-bed and subsoil beyond the limits of national jurisdiction, or over its mineral resources, and no State or person may appropriate any part of that area . . . " *Id.*, sec. 523(1)(b) recites the U.S. view of the law:

> . . . unless prohibited by international agreement, a state may engage, or authorize any[one] to engage, in . . . exploration for and exploitation of that area, provided that such activities are conducted (i) without claiming or exercising sovereignty or sovereign or exclusive rights in any part of that area, and (ii) with reasonable regard for the right of other states or persons to engage in similar activities and to exercise the freedoms of the high seas; . . . minerals [so] extracted . . . become the property of the mining State or person.

Id., cmt. b.

180. 1982 LOS Convention, *supra* n. 39, Arts. 136. 140(1). The "common heritage" concept began with the Antarctic Treaty, *supra* n. 68, and continued with conventions related to outer space. Restatement (Third), *supra* n. 30, sec. 523, cmt. b & r.n.2 adopted the then U.S. position that deep seabed mining was a high seas freedom, rejecting the "common heritage" view in the Convention. However, if the Convention is accepted generally, "without dissent by . . . important . . . States, the sea-bed mining regime . . . may become effective also as custom . . . ." *Id.*, sec. 523, cmt. e.

181. 1982 LOS Convention, *supra* n. 39, Art. 135; *see also* Restatement (Third), *supra* n. 30, secs. 521, cmt. i; 523.

182. 1982 LOS Convention, *supra* n. 39, Art. 137(2). *Id.*, Arts. 156-91, are constitutive provisions for the Authority; they would be modified by the Boat Agreement, *supra* n. 40, to amend Part XI of the Convention. *See* S. Doc. 103-39, *supra* n. 40, 6 U.S. Dep't St. Dispatch Supp. No. 1, at 34-43.

183. 1982 LOS Convention, *supra* n. 39, Arts. 145-46.

184. *Id.*, Art. 149; *see also supra* nn. 65-78 and accompanying text for the relationship between this provision and the contiguous zone and the "other rules of international law" clauses found elsewhere in the Convention.

185. *Compare* 1982 LOS Convention, *supra* n. 39, Arts. 147(1), 147(2)(b), 147(c), *with id.*, Arts. 60, 80; *see also* Restatement (Third), *supra* n. 30, sec. 523(1)(b)(ii) & cmt. d, stating a more solicitous view of high seas freedoms.

186. 1982 LOS Convention, *supra* n. 39, Art. 138, referring to *id.*, Arts. 133-91.

187. *Compare id.*, Art. 141, 21, *with id.*, Arts. 88, 240(a).

188. *See supra* nn. 64-88 and accompanying text.

189. MAHMOUDI, THE LAW OF DEEP SEA-BED MINING (1987) at 173-75.

190. The treaties disclaim any intention to affect parties' rights or claims as to their maritime jurisdiction "established in conformity with international law." Kuwait Regional Convention, *supra* n. 53, Arts. 2, 15; Red Sea Convention, *supra* n. 54, Arts. 2, 15. The protocols allow application to ports, harbors, estuaries, bays and lagoons if there is a "marine emergency," and if the particular country so decides. "Marine emergency" is defined broadly. Kuwait Protocol, *supra* n. 53, Arts. 1(2), 4. Red Sea Protocol, *supra* n. 54, Arts. 1(2), 4. These treaties implement environmental policies of 1982 LOS Convention, *supra* n. 39, Arts. 122-23; *see also supra* n. 170 and accompanying text.

191. *Compare* Kuwait Regional Convention, *supra* n. 53, Art. 1(a), *with* Red Sea Convention, *supra* n. 54, Art. 1(2).

192. Kuwait Regional Convention, *supra* n. 53, Arts. 3(a), 4-7; Red Sea Convention, *supra* n. 54, Arts. 3(1), 4-8, which adds a pledge to prevent, abate and combat pollution "resulting from other human activities."

193. *See generally* Kuwait Protocol, *supra* n. 53; Red Sea Protocol, *supra* n. 54.

194. *Compare* Kuwait Protocol, *supra* n. 53, Art. 1(2), *with* Red Sea Protocol, *supra* n. 54, Art. 1(2).

195. *See supra* nn. 157-59 and accompanying text.

196. The Marine Emergency Mutual Aid Centre, an administrative agency, also must be notified. Kuwait Protocol, *supra* n. 53, Arts. 3, 10; Red Sea Protocol, *supra* n. 54, Arts. 3, 7(2).

197. Kuwait Protocol, *supra* n. 53, Art. 1(4); Red Sea Protocol, *supra* n. 54, Art. 1(4).

198. *See supra* nn. 157-59 and accompanying text.

199. *See also supra* n. 72 and accompanying text.

200. *See supra* nn. 52-54 and accompanying text.

201. Neither Iran nor Iraq was party to the 1958 LOS Conventions, *supra* n. 31. The customary principle of "other rules of international law," restated in these agreements and the 1982 LOS Convention, *supra* n. 39, did apply, however. *See supra* nn. 64-88 and accompanying text.

202. *See supra* nn. 80-83 and accompanying text.

203. *See supra* nn. 191-94 and accompanying text.

204. *See supra* n. 60 and accompanying text.

205. Okorodudu-Fubara, *supra* n. 2, at 197; *see also supra* nn. 58-61 and accompanying text.

206. *See supra* nn. 4-6 and accompanying text.

207. Kuwait Protocol, *supra* n. 53, art. 1(2).

208. *See supra* n. 4 and accompanying text.

209. *See supra* nn. 8-9, 18 and accompanying text.

210. The U.N. Security Council deplored attacks on merchant shipping. If these Resolutions had been obeyed, they would have resulted in no more attacks on these vessels and therefore no more pollution of the Gulf from this cause. These resolutions covered a specific point, *i.e.* freedom of navigation, and therefore should not be construed as applying special Charter law to the exclusion of conventional norms, to these situations. *See supra* n. 8 and accompanying text.

211. *See supra* nn. 80-83 and accompanying text.

212. *See supra* nn. 8, 46 and accompanying text.

213. *See supra* n. 62 and accompanying text.

214. *See supra* nn. 10-11, 13-16 and accompanying text; *see also* Okorodudu-Fubara, *supra* n. 2, at 196.

215. *See supra* n. 55 and accompanying text.
216. *See supra* n. 54 and accompanying text.
217. *See supra* nn. 103, 142, 149, 176, 185 and accompanying text.
218. *See supra* nn. 132, 137, 150, 162-167 and accompanying text.
219. *See supra* nn. 64-88, 121, 133, 142-43, 160, 186-89, 201 and accompanying text.
220. *See supra* nn. 68-72, 186-89 and accompanying text.
221. *See supra* nn. 157-59, 195-99 and accompanying text.
222. *See supra* nn. 4-6 and accompanying text.
223. *See supra* nn. 190-216 and accompanying text.
224. *See supra* n. 46 and accompanying text.
225. *See supra* nn. 190-216 and accompanying text.
226. *See supra* nn. 55, 215-16 and accompanying text.
227. *See supra* nn. 46-49 and accompanying text.
228. *Compare* LOS Convention, *supra* n. 39, Part II.c.1 *with* Part II.c.2.
229. *See supra* nn. 46-49 and accompanying text.
230. *See supra* nn. 60, 62-63, 131 and accompanying text.
231. *See supra* nn. 132, 137, 150, 162-67, 218 and accompanying text.
232. *See supra* nn. 64-88, 121, 133, 142-42, 160, 186-89, 201, 219-20 and accompanying text.
233. *See supra* nn. 103, 142, 149, 176-78, 185, 217, 228 and accompanying text.

Chapter XIV

Environmental Issues in International Armed Conflict: The Experience of the 1991 Gulf War

Professor Adam Roberts*

I. INTRODUCTION

This paper's purpose is to survey, and critically examine in the light of events of modern war, legal restraints which bear on environmental damage in international armed conflict.[1] More specifically, the paper addresses the question of whether, and if so how, environmental damage can be prevented or reduced during international armed conflicts and military occupations. Sections II to V of the paper take a general look (not especially related to the 1990-91 Gulf Conflict) at how this and related issues had been addressed before 1990. Sections VI to XI are principally about the events of the Gulf Conflict, including the 1991 Coalition war to liberate Kuwait, the Iraqi destruction of the oil installations, and the tangled aftermath of that war. Section XII discusses issues and conclusions some of which are specific to the events of the 1990-91 Gulf Conflict, and some of which are more general.

Damage to the environment arising from the 1991 Gulf War raised many questions about whether such consequences of war can be effectively prevented or limited, and if so how. This was by no means the first major war to have raised such questions. However, a peculiar conjunction of circumstances meant that it did so in a sharp form. The war happened at a time when there was already great international concern about many environmental issues; it occurred in a region peculiarly rich in oil, a natural resource already notorious for its manifold effects on the environment; its maritime element was largely in an area of sea, the Gulf, which is enclosed and thus especially susceptible to pollution; it saw serious environmental damage—much of it apparently deliberate; and the war was conducted on one side in the name of the United Nations, which has also been deeply involved in various environmental issues. In the wake of the war, there was renewed concern in the international community with the whole question of environmental destruction in war.[2]

Most, but not all, of the environmental issues were about oil. The oil slicks in the Gulf, the setting on fire of the Kuwaiti oil wells, the Coalition air attacks on

oil installations in Iraq—all seemed to involve, or threaten, damage of several kinds to the natural environment. Other activities in the war also had environmental aspects, including the dumping of quantities of mines and war material in the desert, the bombing of nuclear installations, and the damage to the water supply in Iraq.

It is not my purpose to offer a scientific judgement on the damage to the environment caused by the 1991 Gulf War. It is particularly hard to assess the precise nature and extent of any damage to the natural environments of the earth's atmosphere, the waters of the Gulf, and the land in Kuwait and neighboring regions. Some predictions and preliminary estimates of such damage were made, and are mentioned later in this paper. They reflected disagreement about certain matters, including the extent to which the damage could be expected to be long-term in character. Further studies will certainly follow. There will then be additional questions to be examined: not least, to consider the extent to which the environmental effects of the war have in turn led to human suffering and death, threats to wildlife, damage to crops, and so on. Such studies will be one necessary aspect of any concerted international effort to consider what is to be done about the environmental consequences of war.

What is not in dispute is that the conspicuous damage to the immediate environments of Iraq and Kuwait was, at least in the short term, serious. Kuwait itself was left by the retreating Iraqis an environmental disaster area on land, sea and air. Much of this damage involved a wanton waste of a precious natural resource, namely oil; and proved very difficult and expensive to counter. In Iraq, the damage affecting such public services as sewerage and water purification created a threat to the water supply and other man-made services, and thus to the population at large. Beyond these two countries most directly involved in war, the environmental threats of oil slicks and smoke clouds moved across frontiers to wherever the currents and winds took them. They caused damage to waters and on land in neutral States, especially Iran.

Concern about the environmental consequences of war is not necessarily based on any assumption that the natural environment is something which in its existing state is wholly benign, or incapable of being improved by the hand of man. Impeccably natural earthquakes and eruptions can themselves cause damage, including damage to the environment, on a colossal scale. Nor is such concern based on any assumption that all damage caused by war to the environment is irreparable. Both natural and human agencies may greatly mitigate at least some of the effects of environmental damage.

The events of the war raise the question of what exactly we mean by the 'natural environment'—to use the phrase which occurs in Additional Protocol I 1977.[3] The idea that 'nature' and 'man' are in two separate categories has remained highly influential in this century, for example in shaping policies regarding national

parks in the United States and various other countries. However, many aspects of the environment in which we live, especially where land and fresh water are concerned, are an amalgam of the natural and the artificial: and damage to those aspects of our environment may be just as serious as damage to those parts which are nearer to being purely 'natural', such as the seas and the atmosphere. In the 1991 Gulf War, much damage was inflicted by Iraq on the more purely 'natural' environments of sea and air, while the environmental damage by the Coalition was to the man-shaped environment within Iraq: it would be wrong to exclude the latter from this enquiry.

The environmental consequences of the 1991 Gulf War do not have priority over other issues arising from the manner in which the war was conducted. Questions concerned with other matters, such as the treatment of the inhabitants of Kuwait, and of prisoners and hostages, demonstrably involved large numbers of human lives and vast human suffering. We should not be surprised that, in the midst of death and destruction, and daily fear of worse to come in the form of gas, bacteriological and nuclear warfare, the belligerents did not always have as their first consideration the protection of the natural environment over the medium or long term.[4]

Yet the environmental damage in the 1991 Gulf War did raise classic issues of a kind with which the laws of war have traditionally been concerned. The laws of war—sometimes known as international humanitarian law — have always sought to limit certain kinds of military activities which cause death, misery, and destruction to those not directly involved in a war, or which continue to wreak havoc long after the actual war is over. It is partly for this reason that they have been concerned with the protection of civilians, and of neutral countries, shipping and property; with the rules against certain uses of weapons (*e.g.* some types of mines) which are liable to detonate blindly and at the wrong time; and with the prohibitions of unnecessary destruction. Against this background, it is entirely natural that discussion of the laws of war today should encompass renewed consideration of the environmental aspects of modern war.

The failure to prevent damage to the environment in the 1991 Gulf War was in marked contrast to a degree of success in preventing the conflict from getting out of hand in some other respects: many hostages, seized in the early weeks of the Iraqi occupation of Kuwait, were released before war broke out; Iraq was kept isolated; the war was kept within geographical limits and was brought to a swift conclusion; and gas, bacteriological, and nuclear weapons were not used. Why was there so conspicuous a failure over matters relating to the environment?

II. WAR AND ENVIRONMENT IN EARLIER WARS AND WRITINGS

Throughout history, wars have posed severe threats to at least the immediate environment. Scorched earth policies and deliberate flooding, whether offensive

or defensive, have had serious effects on cultivable land. Concern about damage to water supplies, orchards, crops and forests can be found in much writing and legal thinking about warfare over the centuries.[5] Early writings on the laws of war, including those of Hugo Grotius, show great concern over devastation of land, fields, trees and so on.[6]

If the problem is perennial, the extent and depth of concern about it—the sense that natural resources are limited, the human environment fragile, and the problem global in character—is something which has clearly grown in the post-1945 period. Geoffrey Best has reflected the common perception that there is a new factor here:

> The capacity of war to cause 'widespread, long-term and severe damage' to the natural environment constitutes a menace that is historically novel. Methods and means of warfare did not really place the doing of such damage to the natural environment within the reach of belligerents until World War II. What was however within their reach from earliest recorded times was the ability to destroy part of the anthropogenic environment. This history of civilization, past and present, scanned with a view to ascertaining what kinds and degrees of concern may have been shown about belligerents' religious, ethical or legal responsibilities in this respect discloses: *(a)* a small but consistent canon of laws and customs aiming to control the impact of hostilities on the anthropogenic environment; and *(b)* some lessons as to the value of those laws and customs and the value of the whole body of norms relating to warfare of which they form a part.[7]

In both world wars in this century, oil was a key bone of contention between the belligerents, and there were many cases of destruction of oil installations. However, such destruction was not generally seen at the time as an assault on the environment, nor as necessarily reprehensible. Thus, in the winter of 1916-17, when Romania was invaded by the forces of the Central Powers, the oilfields were destroyed on behalf of the Entente Powers:

> Three-quarters of the country had been lost, with all the fertile corn-bearing plains and the oil-fields, by far the most extensive in Europe. Happily, the latter were to yield nothing to the enemy for several months, for Colonel Norton Griffiths, an English member of Parliament, went round in a car systematically destroying them. Sometimes he barely escaped from enemy patrols, and had often to face the not unnatural hostility of the population; where time was lacking for him to set them on fire, they were put out of action by throwing obstructions down the pipes.[8]

The Second Indochina War (the Vietnam War), which ended in 1975, saw massive programs of defoliation, forest-destruction, and attempts at rain-making: these were widely criticized internationally, and contributed greatly to international efforts to tackle environmental aspects of warfare.[9] The U.S. Government appears to have recognized that the use of such weapons in

international war, outside the territory of a government which acquiesced in it, would be legally questionable. George Aldrich, from 1965 to 1977 a Legal Adviser for East Asian and Pacific Affairs in the State Department, subsequently wrote:

> Even during the Vietnam War, when American armed forces used defoliants on a large scale, the legal advice given by the Legal Adviser to the Secretary of State was that it would be prudent to limit their use to the territories of South Vietnam and Laos, where we had the consent of the Government of the territory, and avoid establishing a precedent for the first use of these novel chemical agents as weapons of war on the territory of either an adversary (North Vietnam) or a neutral (Cambodia). To the best of my knowledge, that advice was followed. . . .10

The Iran-Iraq War of 1980-88 saw extensive environmental damage, some of it resulting from the large-scale destruction of oil installations. There were numerous oil spills in the waters of the Gulf, the worst of which was in the Nowruz field off the coast of Iran in 1983, but none was quite on the scale of the major spill in the 1991 Gulf War. U.N. Security Council Resolution 540 of 31 October 1983, condemning violations of international humanitarian law in this war, called on belligerents to stop hostilities in the Gulf, and to refrain from action threatening marine life there.

III. GENERAL INTERNATIONAL LAW AND THE ENVIRONMENT

International norms relating to the protection of the environment can be found in many quite different kinds of framework. There should be no automatic assumption that the laws of war are the only relevant body of law, or the only means of tackling a rather complex set of problems. Indeed, general political statements from the Stockholm Declaration 1972[11] to the Rio Declaration 1992,[12] and also U.N. General Assembly resolutions, may be as important as formally binding agreements. There is also a growing number of general multilateral and other treaties relating directly or indirectly to the environment. Examples include not only the main treaties in the field of environmental law, but also the 1959 Antarctic Treaty[13], partly motivated by the desire to preserve the fragile ecology of the Antarctic; the Partial Nuclear Test Ban Treaty of 1963,[14] partly motivated by widespread concern about the effects of nuclear testing on the atmosphere and thereby on the food chain; and the 1972 Biological Weapons Convention,[15] which completely prohibits the possession of certain weapons of a type which could seriously impact the environment.

Treaties with a bearing on the environment, though normally applicable in peacetime, may continue to be applied in wartime as well. Whether or not such treaties are formally applicable, belligerents may be expected to operate with due regard for their provisions. Further, such treaties may still govern relations between belligerents and neutrals.

The terms of many treaties were potentially relevant to practical issues faced in the 1990-91 Gulf Conflict. A few examples must suffice. The 1954 Convention for the Prevention of Pollution of the Sea by Oil deals with oil discharged from ships. However, it gives a higher priority to other values, including human life, when it specifies that the treaty does not apply to "the discharge of oil ... for the purpose of securing the safety of the ship, preventing damage to the ship or cargo, or saving life at sea."[16] The 1982 Law of the Sea Convention,[17] in force only since November 1994, contains extensive obligations to protect the marine environment.

Various bilateral and regional treaties were of particular significance in this war. The most important regional accord on environmental matters was the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution 1978, to which many States in the region were parties, including Iran, Iraq, Kuwait, and Saudi Arabia. In accord with its terms, the Regional Organization for the Protection of the Marine Environment (ROPME) was established, with headquarters in Kuwait. Remarkably, its Council had continued to hold meetings, with participation from both warring parties, during the Iran-Iraq War. During the Iraqi occupation of Kuwait in 1990-91, its staff fled, but its headquarters was not looted or taken over. ROPME did assist clean-up operations in 1991 and after.[18]

IV. THE LAWS OF WAR AND THE ENVIRONMENT

Despite the importance of other legal approaches, the laws of war, which attracted considerable attention in the 1991 Gulf War, are central to any discussion of efforts to control the environmental damage of war. If the environment is not to be ignored completely in the conduct of hostilities, then there is an obvious case for having specific rules relating to the protection of the environment, not just in general, but also in wartime.

What, if anything, do the laws of war say about the environment? Sometimes it is asserted that the laws of war have failed entirely to address this problem: this is used as one argument for now creating a new international treaty on the subject. Thus, remarkably, the Soviet Minister of the Environment, Prof. Nikolai Vorontsov, wrote in May 1991:

> There was no sound scientific examination of the destruction caused to the environment during the war in Vietnam, no lessons were learned. After the war, no measures on environmental protection in case of armed conflicts were worked out.[19]

In fact, the provisions of the laws of war regarding the environment, while far from satisfactory, are by no means as lacking as Prof. Vorontsov suggested. This is one of the many areas in which the laws of war consist of a very disparate body of principles, treaties, customary rules, and practices, which have developed over

the centuries in response to a wide variety of practical problems and moral concerns.

A. Underlying Principles of the Laws of War

In considering what the laws of war have to say about environmental damage, it is necessary to start with their underlying principles, most of which seem to have a bearing on the question of environmental destruction. These principles, though ancient in origin, are reflected in many modern texts and military manuals. They include the principle of *proportionality*, particularly in its meaning of proportionality in relation to the adversary's military actions or to the anticipated military value of one's own actions; the principle of *discrimination*, which is about care in the selection of methods, of weaponry and of targets; the principle of *necessity*, under which belligerents may only use that degree and kind of force, not otherwise prohibited by the law of armed conflict, which is required for the partial or complete submission of the enemy with a minimum expenditure of time, life, and physical resources; and the closely-related principle of *humanity*, which prohibits the employment of any kind or degree of force not required for the purpose of the partial or complete submission of the enemy with a minimum expenditure of time, life, and physical resources.[20]

Each of these four principles strongly points to the conclusion that actions resulting in massive environmental destruction, especially where they do not serve a clear and important military purpose, would be questionable on many grounds, even in the absence of specific rules of war addressing environmental matters in detail. When the four principles are taken together, such a conclusion would seem inescapable.

It has been suggested by Richard Falk that there are, in addition, two 'subsidiary principles' which "seem to be well-grounded in authoritative custom and to have relevance to the array of special problems posed by deliberate and incidental environmental harm." These are the principles of *neutrality* and of *inter-generational equity*.[21] The proposition that these are in fact key principles of the laws of war, though it may be unorthodox, is serious. Both these types of consideration do inform certain provisions of the laws of war, and do affect attitudes to environmental destruction. However, since these principles do not add greatly to existing law as reflected in the four principles already outlined and in treaties, it is not necessary to pursue the issue here.

There are obvious limits to the value of customary principles as a basis for guiding the policies of States in wartime. As Richard Falk has said, in pessimistic vein:

> there are extreme limitations associated with a need to rely on these customary principles. Their formulation is general and abstract, and susceptible to extreme subjectivity and selectivity in their application to concrete circumstances.[22]

B. Treaties on the Laws of War

Can treaty law, with its more precise texts and its formal systems of adherence by States, overcome any limitations of the framework of principles as outlined above? In treaties on the laws of war, several kinds of prohibitions can be found which have a bearing on the protection of the environment in armed conflicts and in occupied territories:

1. Many general rules protecting civilians, since these rules also imply protection of the environment on which the civilians depend.[23]
2. Prohibitions of unnecessary destruction, and of looting of civilian property.
3. Prohibitions of attacks on certain objectives and areas (*e.g.*, restrictions on the destruction of dikes).
4. Prohibitions and restrictions on the use of certain weapons (*e.g.*, gas, chemical and bacteriological).
5. Prohibitions and restrictions on certain methods of war (*e.g.*, the poisoning of wells, or the indiscriminate and unrecorded laying of mines).

The word 'environment' does not occur in any treaty on the laws of war before 1977. This does not mean that there was no protection of the environment, but rather that such protection is found in a variety of different forms and contexts. The pre-1977 treaties on the laws of war relate to protection of the environment obliquely rather than directly: they offer general statements of principle, and also some detailed regulations which may on occasion happen to be relevant to the environment.

Thus, the 1868 St. Petersburg Declaration on explosive projectiles, in ringing words which were to prove terribly problematic in subsequent practice, declared that "the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy."[24]

Several of the Hague Conventions and Declarations of 1899 and 1907 contained provisions with a bearing on the environment. In the 1907 Hague Convention IV on land war,[25] the preamble refers to the need "to diminish the evils of war, as far as military requirements permit", and goes on to state in the famous Martens Clause:

> Until a more complete code of the laws of war has been issued, the high contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience.[26]

In the Regulations annexed to the 1907 Hague Convention IV, Article 22 states: "The right of belligerents to adopt means of injuring the enemy is not unlimited." Geoffrey Best has commented: "Post-1945 extensions of that principle from its

traditional application to enemy persons and properties to the natural environment are no more than logical, given the novel and awful circumstances that have suggested them."[27] Article 23 (g) of the Hague Regulations is relevant to certain instances of environmental damage when it states that it is especially forbidden "to destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war." Also in the Regulations, Section III (which deals with military occupations) contains many provisions having a potential bearing on environmental protection. Article 55 is the most obvious, but not the only, example:

> The occupying State shall be regarded only as administrator and usufructuary of public buildings, real estate, forests, and agricultural estates belonging to the hostile State, and situated in the occupied country. It must safeguard the capital of these properties, and administer them in accordance with the rules of usufruct.

It could be further argued that the rules relating to neutrality in war, as contained in 1907 Hague Convention V (in land war) and 1907 Hague Convention XIII (in naval war), by requiring belligerents to respect the sovereign rights of neutral powers, prohibit environmental damage seriously affecting a neutral State.[28] This is a typical case in which protection of the environment, even where it is not mentioned in existing law, may nonetheless be a logical implication of such law.

The 1925 Geneva Protocol on gas and bacteriological warfare[29] provides one basis for asserting the illegality of forms of chemical warfare having a harmful effect on the environment. The Protocol has been the subject of a number of controversies as to its exact scope, and these controversies have included matters relating to the environment. In 1969, during the Second Indochina War, and following reports of U.S. use of chemicals in Vietnam, a U.N. General Assembly Resolution (which unsurprisingly did not receive unanimous support) addressed the issue, declaring that the 1925 Protocol prohibits the use in armed conflicts of:

> (a) Any chemical agents of warfare — chemical substances, whether gaseous, liquid or solid — which might be employed because of their direct toxic effects on man, animals or plants;
> (b) Any biological agents of warfare — living organisms, whatever their nature, or infective material derived from them — which are intended to cause disease and death in man, animals or plants, and which depend for their effects on their ability to multiply in the person, animal or plant attacked.[30]

The four 1949 Geneva Conventions say little about the protection of the environment. They are concerned above all with the immediate and important task of protection of victims of war. However, one of these agreements, the 1949 Geneva Convention IV (the Civilians Convention) builds on the similar provisions

of the 1907 Hague Regulations when it states in Article 53, which is in the section on occupied territories:

> Any destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or co-operative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military operations.[31]

The International Committee of the Red Cross (ICRC) commentary on this article contains the following assessment on the question of 'scorched earth' policies:

> A word should be said here about operations in which military considerations require recourse to a 'scorched earth' policy, *i.e.* the systematic destruction of whole areas by occupying forces withdrawing before the enemy. Various rulings of the courts after the Second World War held that such tactics were in practice admissible in certain cases, when carried out in exceptional circumstances purely for legitimate military reasons. On the other hand, the same rulings severely condemned recourse to measures of general devastation whenever they were wanton, excessive or not warranted by military operations.[32]

Article 147 of Geneva Convention IV, and similar articles in Conventions I and II,[33] confirm that grave breaches of the Convention include "extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly."

The 1954 Hague Cultural Property Convention[34] seeks to protect a broad range of objects, including groups of historic buildings, archaeological sites, and centers containing a large amount of cultural property. All such property is to be protected from exposure to destruction, damage, and pillage. In many cases, obviously, action which was wantonly destructive of the environment would also risk violating the provisions of this Convention.

Environmental matters were addressed by name and directly in two laws of war agreements concluded in 1977. In both cases one important stimulus to new law-making was the Second Indochina War. Although neither of these treaties was formally in force in the 1991 Gulf War, they provide language and principles which may assist in defining and asserting the criminality of certain threats to the environment.

The first of these two 1977 agreements is the U.N. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques.[35] This accord (otherwise known as the ENMOD Convention) was concluded mainly in reaction to the use by the United States of forest and crop destruction, and rain-making techniques, in the Second Indochina War. It deals, essentially, not with damage to the environment, but with the use of the forces of

the environment as weapons.[36] Article I prohibits all "hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury" to the adversary. Article II then defines 'environmental modification techniques as "any technique for changing — through the deliberate manipulation of natural processes — the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space." An authoritative U.N. understanding which was attached to the draft text of the Convention in 1976 provides a non-exhaustive list of phenomena which could be caused by environmental modification techniques: these include, among other things, "an upset in the ecological balance of a region."

The second of these 1977 laws of war agreements touching on the environment is the 1977 Additional Protocol I.[37] This accord, which is additional to the four 1949 Geneva Conventions, contains extensive provisions protecting the civilian population and civilian objects. Article 48, entitled 'Basic Rule', states:

> the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives.

Article 52, on 'General Protection of Civilian Objects', similarly provides a framework for protecting civilian objects, and thus has obvious implications for protection of the environment.

In two of its articles, Additional Protocol I deals specifically with the question of damage *to* the natural environment. (This is distinct from the manipulation of the forces of the environment as weapons, which had been addressed in the ENMOD Convention.) Article 35, which is in a section on 'Methods and Means of Warfare', states in full (the third paragraph being the most explicit on the environment):

> 1. In any armed conflict, the right of the Parties to the conflict to choose methods and means of warfare is not unlimited.
>
> 2. It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.
>
> 3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

The second article in Additional Protocol I referring specifically to damage to the environment is in the chapter on 'Civilian Objects', which is within the section

of the Protocol dealing with protection of the civilian population against the effects of hostilities. Article 55 states in full:

> 1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.
>
> 2. Attacks against the natural environment by way of reprisals are prohibited.

The ICRC commentary notes that the 'care shall be taken' formula in the first paragraph of Article 55 leaves some latitude for judgment, whereas the second paragraph contains an absolute prohibition.[38] In all cases, it is clear that the phrase 'widespread, long-term and severe damage' excludes a great deal of minor and short-term environmental damage. Bothe, Partsch and Solf say:

> Arts. 35(3) and 55 will not impose any significant limitation on combatants waging conventional warfare. It seems primarily directed to high level policy decision makers and would affect such unconventional means of warfare as the massive use of herbicides or chemical agents which could produce widespread, long-term and severe damage to the natural environment.[39]

The rules regarding the environment in Articles 35 and 55 have produced some rather varied responses. The UK delegation in the negotiations was cool about the inclusion of the clause relating to the environment in Article 35: "We consider that it is basically in order to protect the civilians living in the environment that the environment itself is to be protected against attack. Hence, the provision on protection of the environment is in our view rightly placed in the section on protection of civilians."[40]

In its examination of both Articles 35 and 55, the ICRC commentary considers the meaning of 'long-term', suggesting that it refers to decades rather than months. This may exclude much environmental damage. However, the commentary does make it clear that the term 'natural environment' should be interpreted broadly, referring as it does to the "system of inextricable interrelations between living organisms and their inanimate environment." Indeed, the last words of Article 55, paragraph 1, imply such a connection between the environment and humankind.[41] The commentary says:

> The concept of the natural environment should be understood in the widest sense to cover the biological environment in which a population is living. It does not consist merely of the objects indispensable to survival mentioned in Article 54 ... but also includes forests and other vegetation mentioned in the Convention of 10 October

1980 on Prohibitions or Restrictions on the Use of Certain Conventional Weapons as well as fauna, flora and other biological or climatic elements.[42]

Article 54, mentioned in the preceding quotation, is one of a number of other provisions in the same chapter of Additional Protocol I which, while not mentioning the environment by name, do in fact prohibit certain forms of military action destructive of the environment. Thus Article 54, paragraph 2, states (subject to certain important provisos in paragraphs 3 and 5):

> It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.

Still in the chapter on 'Civilian Objects', Article 56 deals with 'Protection of works and installations containing dangerous forces'. Paragraph 1 (subject to certain provisos in paragraph 2) states:

> Works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Other military objectives located at or in the vicinity of these works or installations shall not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.

This article is qualified by the second paragraph, which in effect says that the protection it offers ceases if the military objective in question is used in regular, significant, and direct support of military operations. Despite this qualification, during the 1980s the U.S. government argued that the article gave too great a degree of immunity to dams, dikes, and nuclear electrical generating stations.[43] A further U.S. criticism was that "the provisions of Article 56 purposely use the word 'attack' rather than 'destroy' (as was contained in the original ICRC proposal) in order to preserve the right of a defender to release dangerous forces to repel an attacker. . . ."[44] However, the article plainly does not give total immunity from attack. Where hydroelectric generating stations or nuclear power plants are contributing to a grid in regular, significant, and direct support of military operations, militarily necessary attacks against them are not prohibited.[45]

Others have suggested that Article 56 did not go far enough, or that it should be interpreted to cover a wider range of works and installations containing dangerous forces than the words "namely dams, dykes and nuclear electrical

generating stations" might suggest.[46] This latter view does not reflect the negotiating history of Article 56. This particular article does not cover the question of attacking other kinds of installations containing dangerous forces: for example, factories manufacturing toxic products, and oil facilities. The ICRC commentary indicates that such installations were excluded from Article 56, but may be covered by other articles:

> Several delegations wished to include other installations in the list, in particular oil production installations and storage facilities for oil products. It appears that the consultations were not successful, and the sponsors of proposals in this field finally withdrew them. There is no doubt that Article 55 ... will apply to the destruction of oil rigs resulting in oil gushing into the sea and leading to extensive damage such as that described in that article. As regards the destruction and setting alight of refineries and petroleum storage facilities, it is hardly necessary to stress the grave danger that may ensue for the civilian population. Extending the special protection to such installations would undoubtedly have posed virtually insoluble problems, and it is understandable that the Conference, when it adopted these important prohibitions, limited them to specific objects.[47]

Much else in Additional Protocol I has a bearing on the environment. Thus, in the chapter on Civil Defence, which seeks to give protection to various measures intended to alleviate the effects of hostilities or disasters, the tasks of civil defense forces are so defined in Article 61 as to include, *inter alia*: decontamination and similar protective measures; emergency repair of indispensable public utilities; and assistance in the preservation of objects essential for survival.[48]

Given that Additional Protocol I was not binding as a treaty during the 1991 war, can its key rules on the environment be said to reflect customary law? A number of general rules which have implications for the environment, including Article 48 and much of Article 52, are widely accepted as customary law. As to Articles 35(3) and 55, which specifically mention the environment, Prof. Greenwood acknowledges that they have been viewed by Germany and the United States as representing a new rule; he then states:

> Nevertheless, while there is likely to be continuing controversy about the extent of the principle contained in Article 35(3), the core of that principle may well reflect an emerging norm of international law.

As to Article 56, he suggests that there are grounds for doubting whether the special additional protection it affords to dams, dikes, and nuclear power stations has the status of customary law.[49]

Only one other laws of war agreement refers specifically to the environment: the 1981 U.N. Convention on Specific Conventional Weapons.[50] The preamble repeats the exact words of Additional Protocol I, Article 35(3), which were quoted

in full above, and also recalls a number of other general principles which could have a bearing on environmental damage. Protocol III annexed to the Convention deals with incendiary weapons. Article 2, paragraph 4 of that Protocol states, in a notably weak formulation:

> It is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

C. Case Law

In addition to treaties, past cases are an important guide to the law. In the Second World War there was much general devastation, on many fronts in both Europe and Asia. Some of this resulted in charges of wanton destruction at post-war trials.

The Charter of the International Military Tribunal at Nuremberg did not specifically mention the environment, but it did include in its catalogue of war crimes "plunder of public or private property, wanton destruction of cities, towns, or villages, or devastation not justified by military necessity." In the Tribunal's trial of the major German war criminals in 1945-46, there was a great deal of evidence about such destruction. One of the defendants, General Alfred Jodl, was *inter alia* found guilty of war crimes including scorched earth destruction in respect of North Norway, Leningrad, and Moscow.[51]

Many post-Second World War cases before national tribunals related to environmentally damaging abuse of natural resources in occupied territories. In respect of one Polish case, the United Nations War Crimes Commission was asked to determine whether ten German civilian administrators, each of whom had been the head of a department in the Forestry Administration in occupied Poland in 1939-44, could be listed as war criminals on a charge of pillaging Polish public property. It was alleged that the accused had caused "the wholesale cutting of Polish timber to an extent far in excess of what was necessary to preserve the timber resources of the country." The U.N. War Crimes Committee agreed that *prima facie* evidence of the existence of a war crime had been shown, and nine of the ten officials charged were listed as accused war criminals.[52]

On the other hand, in one post-war case, scorched-earth policies by a retreating occupying power were not ruled to be necessarily illegal. In the case of United States v. Wilhelm List (also called the *Hostages Case*), a U.S. military tribunal at Nuremberg found one of the defendants, General Lothar Rendulic, not guilty on a part of the charge against him based on scorched earth. In the winter of 1944-45, he had been in charge of retreating German forces in northern Norway. As a precautionary measure against a possible attack by advancing Soviet forces, he had destroyed housing, communication and transport facilities in the area. The court

said that the defendant "may have erred in the exercise of his judgement but he was guilty of no criminal act." This part of the judgment was intensely controversial in Norway, and was discussed in the Storting on several occasions. It was widely felt that these German devastations, which had continued up to 6 May 1945, went far beyond the demands of military realism.[53]

V. PROBLEMS OF THE LEGAL PROVISIONS AS THEY STOOD IN 1990

A. General Problems

Before the events of the Gulf Conflict of 1990-91, international law in general, and the laws of war in particular, had not been silent on the matter of environmental damage in war. Yet there are many bases of criticism of the rules as they stood in 1990. The provisions were dispersed in too many types of sources and in too many different agreements; they lacked specificity; they relied heavily on the always hazardous process whereby commanders balance military necessity against other considerations; they had not caught up with the growing concern in many countries about environmental issues; and the means of investigating complaints and punishing violations were not always clear. Above all, there was no effective means of ensuring that an admittedly disparate set of principles and rules was actually accepted, understood, and implemented; and there was much scope for disagreement about what were acceptable targets and methods where risks to the environment were involved.[54]

Treaties on the laws of war, before 1977, contained no mention of the word 'environment'; and their provisions can be said to relate to the environment only indirectly. They do so through prohibitions of wanton destruction; and also through protection of property, whether public or private — an approach which has limits as some environmental 'goods', such as the air we breathe, are not property. Despite such weaknesses, these older rules constituted the strongest legal basis for asserting the illegality of much environmental destruction in war.

Finally, some of the newer laws-of-war rules which attempt to deal directly with protection of the environment—especially those in the 1977 Additional Protocol I and in the ENMOD Convention—had serious limitations, some of which have been mentioned above. They had also failed to secure universal assent: this is indicated by the U.S. attitude to the Protocol, discussed next. During the 1990-91 crisis there was a tendency in public statements about environmental damage to refer mainly to these newer rules, because they do mention the word 'environment' as such, whereas legally stronger and more directly relevant provisions from earlier treaties received less attention.

B. U.S. Attitudes to the Environmental Provisions of Additional Protocol I

Of all the laws of war sources which have been cited, the Additional Protocol I might seem to have the clearest and most explicit provisions about damage to the

environment. Yet these provisions are not without problems, both as regards their substance and as regards the non-participation of certain important States, especially the United States, in this agreement. U.S. official and non-official thinking on Additional Protocol I is more open than that in other States, and merits scrutiny.

Despite its non-accession to Additional Protocol I, the U.S. Government had explicitly recognized, long before Iraq's invasion of Kuwait, that many of this agreement's provisions either reflect customary law, or merit support on other grounds. The key question, therefore, is whether the U.S. Government takes such a view of the provisions which have a bearing on protection of the environment.

When, on 29 January 1987, President Reagan transmitted Additional Protocol II to the U.S. Senate for its advice and consent to ratification, he said in his letter of transmittal:

> ... we can reject Protocol I as a reference for humanitarian law, and at the same time devise an alternative reference for the positive provisions of Protocol I that could be of real humanitarian benefit if generally observed by parties to international armed conflicts. We are therefore in the process of consulting with our allies to develop appropriate methods for incorporating these positive provisions into the rules that govern our military operations, and as customary international law. I will advise the Senate of the results of this initiative as soon as it is possible to do so.[55]

Earlier in January 1987, Michael J. Matheson, Deputy Legal Adviser, United State Department of State, had given a fuller account of U.S. Government thinking about Additional Protocol I. He acknowledged that U.S. non-ratification left a gap, and gave some indication as to how it might be filled:

> Protocol I cannot be now looked to by actual or potential adversaries of the United States or its allies as a definitive indication of the rules that U.S. forces will observe in the event of armed conflict and will expect its adversaries to observe. To fill this gap, the United States and its friends would have to give some alternative clear indication of which rules they consider binding or otherwise propose to observe.
>
> ...
>
> ... in our discussions with our allies to date we have not attempted to reach an agreement on which rules are presently customary law, but instead have focused on which principles are in our common interests and therefore should be observed and in due course recognized as customary law, whether they are presently part of that law or not.[56]

Mr Matheson went on to list "the principles that we believe should be observed and in due course recognized as customary law, even if they have not already achieved that status..." His partial listing of these principles did not include those which explicitly address the protection of the natural environment. Indeed, he indicated that the U.S. administration was opposed to the principle in Article 35

regarding the natural environment, saying that it was "too broad and ambiguous and is not a part of customary law."[57] He was also reported as expressing U.S. opposition to the rule on protection of the environment in Article 55 on the ground that it was:

> too broad and too ambiguous for effective use in military operations. He concluded that the means and methods of warfare that have such a severe effect on the natural environment so as to endanger the civilian population may be inconsistent with other general principles, such as the rule of proportionality.[58]

Matheson and Judge Abraham Sofaer, Legal Adviser, United State Department of State, also criticized in detail the provisions of Article 56, concerning works and installations containing dangerous forces; as have some subsequent official U.S. writings.[59]

In the public polemics about whether or not the U.S. should ratify Additional Protocol I, there had not been a systematic and sustained debate about these particular provisions bearing on the environment. George Aldrich did go so far as to assert that these provisions may be verging on the status of customary law:

> While these provisions of Articles 35 and 55 are clearly new law — 'rules established by the Protocol' — I would not be surprised to see them quickly accepted as part of customary international law insofar as non-nuclear warfare is concerned...[60]

Despite such optimism, the awkward truth is that the U.S. went into the 1991 Gulf War against a background of scepticism, not just generally about Additional Protocol I, but particularly about those of its provisions that explicitly mention the environment. Further, the initiatives to consult allies to determine which of the Protocol's provisions were generally acceptable had not led to any published results by the start of 1991.[61] These facts may have hampered the U.S. from placing much explicit reliance on provisions in Additional Protocol I, even though there were many which were accepted in practice and did have at least an indirect bearing on environmental protection.

VI. APPLICABILITY OF LAWS OF WAR IN THE 1990-91 GULF CONFLICT

From 2 August 1990 — the day when armed conflict between Iraq and Kuwait began — many laws of war agreements were, beyond any serious doubt, formally in force as regards the Iraqi occupation and the subsequent war. (The term 'conflict' is used here to refer to both the occupation and the war.) Some other agreements were not formally in force.

The following sections show which of the principal States involved in, or directly affected by, the conflict were formal parties to the relevant accords. The

positions of fourteen States, chosen somewhat arbitrarily, are considered here: Canada, Egypt, France, Iran, Iraq, Israel, Italy, Jordan, Kuwait, Saudi Arabia, Syria, Turkey, U.K., and U.S.

This is obviously not intended as a complete list: forty-two countries provided contributions to the Coalition, of which twenty-eight took part in military activities in the region: yet only ten of them appear in this list. In addition, many other States in the region were involved in the war and its consequences in some other way.

A. Agreements in Force in the Gulf Conflict

The laws of war agreements under the following three headings were beyond any serious doubt formally in force.

1. 1907 Hague Convention IV and Regulations on Land Warfare. Although by no means all the States involved in the conflict were formally parties to this accord, or to the very similar one of 1899, the Hague Convention No. IV and Regulations are widely accepted as part of international customary law, binding on all States. They govern the conduct of occupation forces as well as armed combat. (Other 1907 Hague Conventions also contained many relevant provisions, especially No. V on Neutrality in Land War, No. VIII on Automatic Submarine Contact Mines, No. IX on Bombardment by Naval Forces, and No. XIII on Neutrality in Naval War.)[62]

2. 1925 Geneva Protocol on Gas and Bacteriological Warfare.[63] All fourteen States listed above were parties to this treaty, which prohibits the use in war of gas, chemical and bacteriological weapons.

3. The four 1949 Geneva Conventions on Protection of Victims of War.[64] All fourteen States (and indeed virtually all States in the international community) were parties to these treaties, which govern, respectively: I - Wounded and Sick; II - Wounded, Sick and Shipwrecked at Sea; III - Prisoners of War; IV - Civilians, especially in occupied territory, and under internment.

In addition, because Iraq and Kuwait were both parties, the 1954 Hague Cultural Property Convention and Protocol[65] was in force, at least as regards Iraq's occupation of Kuwait. Although three of the fourteen States listed above were not parties — Canada (which had not signed at all), and U.K. and U.S. (which had signed but not ratified) — they have observed the Convention's main provisions in practice. As the convention's relevance to environmental protection is limited, its application in the 1991 Gulf War is not pursued here.

B. Agreements Not Fully in Force in the Gulf Conflict

Certain key agreements were not fully in force for all parties to this conflict. The three most recent laws of war agreements — and the only ones to mention the environment by name — all fell into this category.

The 1977 Convention on Environmental Modification Techniques[66] entered into force in a general way on 5 October 1978. Of the fourteen countries listed above, only six (Canada, Egypt, Italy, Kuwait, U.K,. and U.S.) were parties. Four (Iran, Iraq, Syria and Turkey) had signed but not ratified. Four (France, Israel, Jordan, and Saudi Arabia) had not signed or acceded at all. It is possible that States parties were still obliged to implement this agreement in the war.

The 1977 Additional Protocol I[67] entered into force in a general way on 7 December 1978. Of the fourteen countries listed above, only six (Canada, Italy, Jordan, Kuwait, Saudi Arabia, and Syria) were parties. Again, four (Egypt, Iran, U.K., and U.S.) had signed but not ratified. Four (France, Iraq, Israel, and Turkey) had not signed or acceded at all.[68] According to its Article 1, paragraph 3, this treaty applies in the situations referred to in Article 2 common to the four 1949 Geneva Conventions: in other words, it applies as between States parties, who are also obliged to apply it in relations with a non-party if the latter accepts and applies the treaty's provisions. Since Iraq showed no sign of doing this, and since a significant number of its adversaries were not parties, the Protocol cannot be said to have been in force in the Gulf conflict. However, as noted below, certain States not parties to the Protocol (including the U.S.) did make moves towards 'accepting and applying' some of the Protocol's provisions in this conflict.

The 1981 U.N. Convention on Specific Conventional Weapons[69] was also not formally in force in the Gulf conflict. Indeed, the only one of the fourteen States listed above to have become legally bound by it (through signature and ratification) was France; and France, at ratification of this Convention, had only accepted its Protocols I and II — not Protocol III on incendiary weapons.

Despite the fact that they were not formally in force in this war, these three agreements were potentially relevant to the Gulf conflict in a number of overlapping ways. Firstly, to the extent that some of their provisions were accepted as an expression of customary international law, they were binding on all States. Secondly, many States could in practice, as a matter of policy as much as of formal legal obligation, choose to observe norms outlined in these agreements; and the language used in these accords provided one basis for pronouncements, including by U.S. authorities, about policy controlling the use of force in this conflict.

C. ICRC Statements on Applicability of Law

From 2 August 1990 onwards, in extensive direct contacts with the governments concerned, and also in press releases, the International Committee of the Red Cross repeatedly reminded the States involved in the Kuwait crisis of their legal obligations under the laws of war.[70] The most detailed of these reminders was in a Memorandum on the Applicability of International

Humanitarian Law, sent to the 164 parties to the Geneva Conventions in mid-December 1990. This included the following statements:

> The following general rules are recognized as binding on any party to an armed conflict:
>
> — the parties to a conflict do not have an unlimited right to choose the methods and means of injuring the enemy;
>
> — a distinction must be made in all circumstances between combatants and military objectives on the one hand, and civilians and civilian objects on the other. It is forbidden to attack civilian persons or objects or to launch indiscriminate attacks;
>
> — all feasible precautions must be taken to avoid loss of civilian life or damage to civilian objects, and attacks that would cause incidental loss of life or damage which would be excessive in relation to the direct military advantage anticipated are prohibited.
>
> ....
>
> The ICRC invites States which are not party to 1977 Protocol I to respect, in the event of armed conflict, the following articles of the Protocol, which stem from the basic principle of civilian immunity from attack:
>
> — Article 54: protection of objects indispensable to the survival of the civilian population;
>
> — Article 55: protection of the natural environment;
>
> —Article 56: protection of works and installations containing dangerous forces.[71]

This, and other ICRC statements, could be criticized, especially for their emphasis on Additional Protocol I 1977, not technically in force in this conflict. Certain other principles and rules (for example the prohibition of wanton destruction in Geneva Convention IV, 1949) might have provided a legally sounder and politically more acceptable basis for protection of the environment.

In a press release issued on 1 February 1991, over ten days after the major Iraqi oil spills into the Gulf had begun, the ICRC issued another warning against environmental destruction:

> The right to choose methods or means of warfare is not unlimited. Weapons having indiscriminate effects and those likely to cause disproportionate suffering and damage to the environment are prohibited.[72]

D. The Problem of Iraqi Compliance

A central problem with the application of the law was that Iraq tried to escape its obligations. After 2 August 1990, when the ICRC was seeking to carry out

humanitarian activities in Kuwait, the Iraqi authorities denied that the conflict was an international one. Various ICRC efforts in autumn 1990 to get Iraq to accept its obligations under the Geneva Conventions were unsuccessful.[73] After the beginning of Operation Desert Storm in January 1991, the definition of the hostilities as international does not appear to have been contested by any party, but Iraq was still not forthcoming about its legal obligations. It only began to accept them (for example, in relation to prisoners of war) around the time of the liberation of Kuwait and cease-fire at the end of February 1991.

VII. PRE-WAR WARNINGS OF ENVIRONMENTAL DAMAGE

Before war actually broke out on the night of 16-17 January 1991, there was more than adequate warning of possible environmental damage in the event of a war over Kuwait. Iraq consistently threatened to set fire to the oilfields. On 23 September 1990, Saddam Hussein said in a statement that if there was a war, Iraq would strike at the oilfields of the Middle East and Israel.[74] On 23 December, in immediate response to tough comments in Cairo by the U.S. Secretary of Defense, Richard Cheney, the Iraqi Defense Minister said in Baghdad: "Cheney and his aides will see how the land will burn under their feet not only in Iraq but ... also in Eastern Saudi Arabia, where the Saudi fighters will also feel the land burn."[75]

These Iraqi statements, like the threats to use hostages as human shields, appear to have further solidified international opinion against Iraq.[76] To the extent that this is so, it confirms the complexity and importance of the links between *jus in bello* and *jus ad bellum*.

The scope of the potential environmental threat of a war over Kuwait was heavily publicized in the weeks before the war, but mainly by those arguing that war should be avoided altogether. King Hussein of Jordan gave such a warning at the Second World Climate Conference in Geneva in November 1990. Similarly, at a symposium of scientists held in London on 2 January 1991 it was suggested that a large proportion of the oil wells had been mined and might be ignited by the Iraqis; that the resulting fires might burn up to 3 million barrels of crude oil a day; and that oil spilt from damaged wells and pipelines would flow into the Gulf, causing a spill "10 to 100 times the size of the Valdez disaster." (It was apparently assumed that the large spill envisaged would happen as a by-product of general damage to wells, rather than as a result of deliberate Iraqi policy.) Some, including Dr. Abdullah Toukan, chief scientific adviser to King Hussein of Jordan, argued that a war in the Gulf would lead to a "global environmental catastrophe," including a "mini nuclear winter." Dr. John Cox, calling for a computer simulation (and accepting that it might show that "my fears are groundless") said of the possible effect on the Middle East climate: "We must not wait until six months after the fires are burning, and we see 500 million people starving as a result of

climate changes, then have scientists asking what caused it all." He also suggested that smoke from oil fires could scavenge ozone in the stratosphere, causing an ozone hole over the Indian sub-continent. However, at least one speaker at the symposium, Basil Butler, a managing director of BP, challenged claims that the war would trigger a climate change which would dry up the monsoons in Asia, leaving a billion people to starve. He did not deny that there would be serious local problems: "We do have a very major problem on our hands to deal with well fires in Kuwait if the wells are mined and the heads blown off by the Iraqis."[77]

The vast scale of the envisaged environmental catastrophe was used by many as an argument against resorting to war at all as a means of liberating Kuwait. Thus, in much of the political debate of the time, to be environmentally concerned was to predict global catastrophe, and to be anti-war; while those who supported the resort to war said little about the environmental aspects of a possible war. This polarization of the debate had a serious consequence. There was little if any public discussion of the means which might be used, if there was a war, to dissuade Iraq from engaging in environmentally destructive acts; and little if any reference to the laws of war as one possible basis for seeking limitations of this kind.

In the weeks before and after the outbreak of war in January 1991, the British Government examined the possible environmental impact of massive oil fires. On 4 January, the Energy Secretary, John Wakeham, said:

> Oil fires of this magnitude would certainly be unpleasant, environmentally harmful and wasteful of energy resources, and if there were a large number it might take over six months to put them all out. But suggestions of a global environmental disaster are entirely misplaced.[78]

In the last days before the war, President Bush tried to impress upon President Hussein the key importance of certain limits. In a letter which Iraqi Foreign Minister Tariq Aziz refused to accept from Secretary of State James Baker at Geneva on Wednesday 9 January 1991, President Bush wrote:

> ... the United States will not tolerate the use of chemical or biological weapons, support of any kind for terrorist actions, or the destruction of Kuwait's oil fields and installations. Further, you will be held directly responsible for terrorist actions against any member of the Coalition. The American people would demand the strongest possible response. You and your country will pay a terrible price if you order unconscionable acts of this sort.[79]

VIII. PRE-WAR ROLE OF U.N. SECURITY COUNCIL

In the long period between the Iraqi occupation of Kuwait and the beginning of the war, the U.N. Security Council was unprecedentedly active; but it did

relatively little to focus attention on the need to respect laws of war limitations in the event of an armed conflict; and it did even less about threats to the environment. Security Council Resolution 670 of 25 September 1990, which was basically about sanctions on air transport to Iraq, contained at the end a paragraph in which the Council reaffirmed:

> that the Fourth Geneva Convention applies to Kuwait and that as a High Contracting Party to the Convention Iraq is bound to comply fully with all its terms and in particular is liable under the Convention in respect of the grave breaches committed by it, as are individuals who commit or order the commission of grave breaches.

Clearly this related primarily to the occupation of Kuwait, and did not specifically address the matter of limitations which would apply in any war for the liberation of Kuwait.

Security Council Resolution 674 of 29 October 1990 was the most detailed on humanitarian law issues. After repeating the above-quoted passage from Resolution 670, it demanded that Iraq desist from taking third-State nationals hostage, from mistreatment of inhabitants and third-State nationals in Kuwait, and from any other actions in violation, *inter alia*, of Geneva Convention IV. It then indicated that certain violations might be punished: it invited "States to collate substantiated information in their possession or submitted to them on the grave breaches by Iraq . . . and to make this information available to the Security Council;" and it reminded Iraq that it was liable for any loss, damage or injury arising in regard to Kuwait and third States, referring also to the question of financial compensation. However, for all its merits, Resolution 674 did not spell out the principles or rules which would apply in a possible war.

The famous Security Council decision authorizing the use of force — Resolution 678 of 29 November 1990 — said nothing at all about laws of war limits; it was the last resolution before the outbreak of war.

In the circumstances of the time, even the obvious could benefit from reaffirmation, and in addition some matters did need clarification and interpretation. In view of Iraq's cavalier attitude to basic rules, as evidenced for example in the weeks and months after 2 August 1990 by the seizure of hostages and the threats to destroy the oil installations, it was clear that any reminders to Iraqi commanders about limitations in war might need to come from outside. New environmental threats and public environmental concerns strengthened the case for having a clear statement about how environmental destruction ran counter to older as well as newer agreements on the laws of war. Further, in view of the lack of formal applicability of Additional Protocol I in this conflict, it could have been helpful if the U.N. had clarified whether at least some of its underlying principles and basic rules, such as those contained in Articles 35 and 48, were to be applied. The need to harmonize practices among the many members of the Coalition, and

to be seen to have done so, heightened the case for some U.N. statement on such matters. Fears of U.S. sensitivities about Additional Protocol I might have inhibited some from raising this issue. However, since the U.S. Government had itself many years earlier conceded that the U.S. non-ratification of the Additional Protocol left a gap, it would have been reasonable for the U.N. to have attempted, at least partially, to fill that gap. Although there were precedents from earlier crises for action in this field being taken by the General Assembly, and by the Secretary-General, in 1990-91 the obvious forum for such a role would have been the Security Council.

IX. THE 1991 WAR

A. Initial Coalition Policy Statements

After the start of Operation Desert Storm on the night of 16-17 January 1991, statements by some Coalition governments placed an, albeit limited, emphasis on laws of war issues; but these were mostly of a rather general character, and contained few specific references to the protection of the environment or the avoidance of wanton destruction.

The initial address to the nation by President Bush on the evening of 16 January did specify that targets which U.S. forces were attacking were military in character, but the speech contained no other indication of the limits applicable to the belligerents under the laws of war.[80]

In remarks made on 16-18 January, Richard Cheney, U.S. Secretary of Defense, and Lt. Gen. Chuck Horner, Commander of the U.S. Central Command Air Forces, particularly stressed that the bombing campaign would avoid civilian objects and religious centers. Some of their words on this point echoed the words of Additional Protocol I, Article 48, "the Basic Rule," cited above.

During the war, the U.S. armed forces appear to have placed much emphasis on operating within established legal limits. General Colin Powell, Chairman of the Joint Chiefs of Staff during the war, said subsequently: "Decisions were impacted by legal considerations at every level. Lawyers proved invaluable in the decision-making process."[81]

There appear to have been some official American attempts to gag discussion of the environmental effects of the war. On 25 January 1991, researchers at Lawrence Livermore National Laboratory received a memorandum which read in part:

> DOE [Department of Energy] Headquarters Public Affairs has requested that all DOE facilities and contractors immediately discontinue any further discussion of war-related research and issues with the media until further notice. The extent of what we are authorized to say about environmental impacts of fires/oil spills in the Middle East follows:

> "Most independent studies and experts suggest that the catastrophic predictions in some recent news reports are exaggerated. We are currently reviewing the matter, but these predictions remain speculative and do not warrant any further comment at this time."[82]

The British Government, at the start of Operaiton Desert Storm, stressed that the Coalition forces were operating within a framework of legal and moral restraint. Prime Minister John Major told the House of Commons on 17 January:

> I also confirm that the instructions that have been given to all the allied pilots are to minimise civilian casualties wherever that is possible, and the targets that they have been instructed to attack are, without exception, military targets or targets of strategic importance.[83]

At the beginning of the war there do not appear to have been any British Government statements of a general character about the laws of war as they bear on the environment, but such statements were made in February (see below) in the context of condemnations of Iraqi conduct.

B. Iraqi Attacks on Oil Facilities

During the war, many military actions on both sides involved oil targets but were not necessarily seen as war crimes. The Coalition made attempts (occasionally breached) to avoid targeting tankers and commercial oil facilities in Kuwait; but oil depots and refineries in Iraq were viewed as military targets and hit by Coalition bombing. This brief survey concentrates on Iraqi actions, especially in occupied Kuwait.

Soon after the beginning of Operation Desert Storm, the Iraqi forces launched an attack against the Khafji oil storage depot in northern Saudi Arabia, setting it on fire, and reportedly causing leakage of oil into the Gulf. Iraqi forces also caused a much larger slick, reportedly from as early as 19 January, by pumping huge quantities of oil into the Gulf from the Sea Island Terminal, a pumping station for the Mina al Ahmadi crude oil tank farm in Kuwait. This spill was reportedly reduced by Coalition forces accidentally setting the terminal ablaze on the night of 25-6 January; and it was eventually brought under partial control by Coalition bombing of the pumping stations at Mina al Ahmadi on 26 January.[84]

At about the same time, there were also huge spills into the Gulf — again, apparently deliberate Iraqi acts — from Iraqi tankers moored at Mina al Ahmadi. By 24 January, when air reconnaissance in the area was conducted, these ships were apparently empty, or almost empty, of oil.[85]

The total amount of oil spilled into the Gulf almost certainly constituted the largest oil spill ever. Estimates at the time of the total amount of oil ranged up to eleven million or more barrels of crude.[86] By mid-February, reports of the scale, movement, and likely damage of the oil slicks were slightly less apocalyptic than

earlier.[87] The true size of the spill was probably between six and nine million barrels.[88]

The total damage done by the slicks was considerable. By May, over 400 kilometres of the Saudi coast, as well as the southern Kuwaiti coast, was affected. There was damage to coastal marshlands, to wildlife (over 30,000 marine birds killed), to coastal flora, to fishing, and to offshore oil operations.[89]

The massive, indeed in its scale unprecedented, destruction of the oilfields of Kuwait was the most efficiently conducted Iraqi action since the start of the war. It had been carefully prepared. A small group of oil installations in southern Kuwait was set on fire by the Iraqi forces during the first week of the war, evidently as a test.[90] Then on 21-22 February, just before the Coalition ground offensive began on 23-24 February, Iraq started the program of systematic destruction of Kuwaiti oil installations, casting a huge pall of smoke across the country. Before the flight of Iraqi forces from Kuwait ended on 28 February, they blew up or damaged virtually all the oil installations in Kuwait. 613 wells were set on fire, and 175 others left gushing or damaged. As to the rate of burn, estimates ranged between over two and six million barrels per day.[91]

Most of these Iraqi actions regarding oil seem to have had little military rationale. Kuwait later claimed that the environmental devastation was not the result of military conflict, but "the product of a deliberate act that was planned in the very first days of the brutal Iraqi occupation of Kuwait."[92] Some have speculated that the oil slicks in the Gulf were intended to hamper possible efforts at amphibious landings in Kuwait: however, quite apart from the doubtfully relevant fact that (as emerged later) the Coalition's preparations for such landings were a ruse, it is debatable whether, given their location, the slicks would have seriously hampered any amphibious landings. Oil damage to ships, especially to their cooling systems, could have been serious, but the Coalition powers managed by various means to avoid it.[93] As to the burning of the oil wells, there is no evidence that Iraq actually intended to achieve a military effect by this means. However, the huge smoke clouds caused by the fires, and poor weather during the last week of the war, did significantly impede air operations over Kuwait, including reconnaissance and ground attack. As the Pentagon interim report (but not the final one) put it:

> The operational impact of oil fires and smoke on the Coalition forces attacking Kuwait City was mixed. Air support was severely hampered. As direction and strength shifted, surface winds initially complicated then ultimately favored Coalition forces by blowing from south to north during the ground offensive.[94]

Thus, while Iraq's releasing of oil and destruction of oilfields had some marginal military effect, or at least potential, there is no evidence that that was the purpose. The Pentagon expressed puzzlement about the purpose.[95] Almost certainly, Iraq's

motive was less tactical than punitive: to do damage to Kuwait, hurt its adversary and neighbor, and diminish the value of the prize for which the war was supposedly being fought. The fact that only Kuwaiti wells were set alight, and not those on the Iraqi side of the border, confirms this conclusion; as does the fact that explosive charges were used, rather than simple ignition with opened valves.[96]

The Iraqi environmental destruction was heavily criticized by Coalition leaders. Thus, on 25 January, as the extent of the Iraqi oil spill into the Gulf was attracting notice, U.S. officials said that the world had never previously had to deal with a deliberate and malicious spill. President Bush said:

> Saddam Hussein continues to amaze the world. First, he uses these Scud missiles that have no military value whatsoever. Then, he uses the lives of prisoners of war, parading them and threatening to use them as shields; obviously, they have been brutalized. And now he resorts to enormous environmental damage in terms of letting loose a lot of oil — no military advantage to him whatsoever in this. It is not going to help him at all... I mean, he clearly is outraging the world.[97]

Richard Cheney accused Saddam Hussein of environmental terrorism, adding: "It is one more piece of evidence, if any more were needed, about the nature of the man himself. He is best described as an international outlaw."[98] On 28 January, Michael Heseltine, the British Secretary of State for the Environment, said in a long statement in the House of Commons: "Words are inadequate to condemn the callousness and irresponsibility of the action of Saddam Hussein in deliberately unleashing this environmental catastrophe."[99] On 22 February he said in a written answer: "Iraqi action has already led to damage to the environment as indicated by the deliberate release of oil into the Gulf. The Government together with the countries of the OECD has condemned this action as a violation of international law and a crime against the environment." On the environmental impact of operations by the forces seeking to implement U.N. resolutions, he said: "Environmental factors are taken into account by the Coalition forces as far as possible in the planning and conduct of military operations as part of the policy of ensuring that collateral damage from those operations is minimised."[100]

On 22 February, as the Iraqis began destroying the Kuwaiti oil installations, and on the eve of the Coalition land offensive, President Bush said: "He is wantonly setting fire to and destroying the oil wells, the oil tanks, the export terminals, and other installations of that small country."[101] On the same day, in Riyadh, Brigadier General Richard Neal, Central Command's Deputy Director of Operations, commented: "It looks like he's carrying out what he said on several occasions. We've had a difficult time trying to figure out the motivation for a lot of his actions."[102]

The destruction of the oil installations in Kuwait proved to be on the massive scale which some had forecast, the rate of burn-off was actually higher than many

had anticipated, and the consequences were serious. The flood of oil from the wells formed lakes and reportedly affected aquifers. The fires involved huge waste of a valuable natural resource. They spewed many gases, including the 'greenhouse' gas carbon dioxide (perhaps 3 per cent of the world's total annual fossil fuel emissions), into the atmosphere. Heavy metal-laden soot particles and aromatic hydrocarbons contributed to the atmospheric pollution. In Kuwait, in the months after the war, the heavy atmospheric pollution caused an increase in respiratory illnesses, a lowering of regional temperatures, and much damage to the land.[103] The smoke was widely reported as having adverse effects in neighboring countries, including Iran and Saudi Arabia, and in the waters of the Gulf. There were reports of black rain in Turkey, Iran and the Himalayas. However, the harmful effects of the oil fires were mainly regional, and were nothing like the global disaster which some had forecast. Soot from the fires does not appear to have risen high enough to cause the global environmental effects which some had feared. There was no demonstrable effect on the climate outside the Persian Gulf region, and no demonstrable influence on the Indian monsoon.[104]

The Iraqi actions—the discharge of oil into the Gulf, and the burning of the Kuwaiti oilfields—were plainly contrary to the laws of war. There has been general agreement that they violated Article 23 (g) of the 1907 Hague Regulations. It is also widely accepted that they violated Article 147 of Geneva Convention IV; and also Article 53, which is in the section on occupied territories. Whether the Iraqi actions would have constituted violations of two conventions which mention the environment—the 1977 ENMOD Convention, and Additional Protocol I—neither of which was in force in the 1991 Gulf War, is a more contentious matter.

As regards ENMOD, a key question would be: was Iraq, to use the language of Article II, "changing — through the deliberate manipulation of natural processes — the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space"? It might well be asserted that this was, rather, a case of the deliberate abuse of man-made installations and artificial processes: of damage *to* the environment, but not necessarily damage *by* the forces of the environment. The terms of ENMOD, as well as the fact that it was not in force in this war, suggest that it had little or no relevance to the Iraqi actions.[105]

As regards Articles 35 and 55 of Additional Protocol I, there is perhaps more room for the view that Iraqi actions would have violated these environmental provisions. In its July 1991 Interim Report to Congress, the Pentagon stated that Iraq had committed extensive and premeditated war crimes, which included "unnecessary destruction, as evidenced by the release of oil into the Persian Gulf and the sabotage of hundreds of Kuwaiti oil wells." It stated that these actions "could implicate a number of customary and conventional international law

principles," including from the 1907 Hague Regulations and 1949 Geneva Convention IV, and further mentioned in its list Articles 35 and 55 of Additional Protocol I.[106] However, the Pentagon's April 1992 Final Report, while continuing to assert the illegality of Iraqi actions, was much more dismissive of the Protocol's relevance, especially in the following:

> Even had Protocol I been in force, there were questions as to whether the Iraqi actions would have violated its environmental provisions. During that treaty's negotiation, there was general agreement that one of its criteria for determining whether a violation had taken place ("long-term") was measured in decades. It is not clear the damage Iraq caused, while severe in the layman's sense of the term, would meet the technical-legal use of that term in Protocol I. The prohibitions on damage to the environment contained in Protocol I were not intended to prohibit battlefield damage caused by conventional operations and, in all likelihood, would not apply to Iraq's actions in the Persian Gulf War.[107]

This passage is likely to provoke criticism, especially for its characterization of Iraqi actions and their consequences. Yet the fact that there is scope for debate about the relevance of the environmental provisions of Additional Protocol I (and also of ENMOD) confirms the importance of earlier provisions, including from the 1907 Hague Regulations and 1949 Geneva Convention IV: these were a key basis for judging Iraqi actions.

C. Coalition Military Actions

Many Coalition actions in the crisis had environmental consequences, even if they were on a lesser scale than those caused by their adversaries. Further, some actions which they did not take could have affected the environment. In the months before the war, when U.N. Security Council sanctions were imposed on Iraq, there were some proposals that Iraq might be defeated by stopping the flow of the Tigris and Euphrates (both of which originate in Turkey): these were not implemented, for reasons that can be guessed but are not definitely known.[108]

Of all the actions which were taken by the Coalition, that which has attracted most attention as regards environmental consequences is the bombing of Iraq. Many objects which were attacked, such as oil storage sites, power stations, and warehouses, provided for the needs of both the armed forces and the civilian population. It must be doubtful whether it is possible to embark on a policy of damaging the military function of such targets without at the same time doing harm to the civilian population and/or the environment; and so it proved in this case. In March 1991, in the immediate aftermath of the war, a controversial report submitted to the United Nations by Martti Ahtisaari, the Finnish head of a special investigative commission, deplored the devastation of Iraq. It noted the destruction of non-military objectives in Iraq—for example, a seed warehouse, and a plant producing veterinary vaccines—and it said that "all electrically operated

installations have ceased to function," causing shortages and contamination of the water supply.[109] The damage to facilities serving Iraqi civilian life was serious, and was notably criticized in a report by Middle East Watch.[110] Some other reports in the aftermath of the war were less negative.[111] In the present state of the law, a verdict that the bombing policy in general was illegal would be hard to sustain. However, Oscar Schachter's judgement is worth noting: "The enormous devastation that did result from the massive aerial attacks suggests that the legal standards of distinction and proportionality did not have much practical effect."[112]

The coalition attacks on nuclear facilities in Iraq raised worries that there might be substantial release of radioactive materials, causing local environmental damage. Because, as is now known, Iraq had removed its nuclear materials and buried them off-site, such release appears to have been minor. The question remains, whether attacks on facilities containing nuclear materials would be contrary to the laws of war. There appears to be no absolute answer. The problem comes closest to being addressed in Additional Protocol I, Article 56, on 'Works and installations containing dangerous forces'. However, this is of limited relevance because, as noted above, *(a)* it is not accepted as part of customary law; and *(b)* it deals with 'nuclear electrical generating stations', but does not appear to address the types of nuclear installation actually attacked in Iraq. Even if the targets had been nuclear electrical generating stations, attack is only prohibited (and then incompletely) "if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population." If attack does take place, "all practical precautions shall be taken to avoid the release of the dangerous forces." These formulae leave much to the judgement and skill of the attackers; and confirm that there are, inevitably, many loose ends left by the negotiators who concluded Additional Protocol I. Clearly, attacks on nuclear installations risk very serious consequences, and require very special reasons and precautions; but in the present state of the law it cannot be said that they are always prohibited.[113]

A strong defense of the Coalition bombing policy generally can be made along the lines that it was aimed at targets which had some military relevance, was conducted with unusual precision, and any damage which was outside the proper military purposes of the war was accidental or collateral in character. These points were emphasized by Tom King MP, Secretary of State for Defence, in evidence to the Defence Committee of the House of Commons on 6 March 1991. He stated categorically that water pumping plants in Baghdad had not been a target, though their operations had inevitably suffered from the attacks on electrical power-generating stations; and he said that nuclear reactors were only attacked "after the most detailed planning to minimise the risk of any radiation spreading outside the site."[114] The account of the war in the British Defense white paper makes the same point:

> There was evidence too that Iraq had been seeking to develop nuclear and biological weapons. The allies therefore placed great importance on deterring Iraq from using any such weapons. Alliance leaders made it clear they would take the gravest view of any Iraqi use of weapons of mass destruction. Production and development facilities were attacked with precision-guided munitions using tactics designed to minimise any risk of contamination outside the sites.[115]

Similarly, the Pentagon's reports to the U.S. Congress in July 1991 and April 1992 say of the bombing campaign that aircraft and munitions were carefully selected to achieve "the least risk to civilian objects and the civilian population."[116]

Taking the Coalition bombing campaign overall, and making full allowance for the inadequate state of current information about its effects, it does appear that such Coalition actions as damaged the environment were less wanton and gratuitous than the Iraqi oil crimes in Kuwait, and that some, but only some, significant efforts were made to avoid or reduce certain kinds of environmental damage. However, the allied actions serve as an uncomfortable reminder that prohibiting or reducing the environmental damage of war is not a simple task.

D. Remnants of War

The dangerous effects of remnants of war have long been a cause of concern, including to the United Nations.[117] Such acts as the laying of mines without keeping careful plans violate basic principles of the laws of war on several grounds. They pose a serious risk to innocent human life, even after the end of a war, and they may degrade the environment in a lasting way. Moreover, attempts to make the land environment safe again are liable to cost a great deal of money, human effort, and lives.

The 1991 Gulf War left the land littered with the remnants of war. There were trenches of oil on the frontier with Saudi Arabia, prepared by Iraqi forces to frustrate a Coalition invasion; and pools of oil near the destroyed oil installations. Iraqi forces reportedly laid more than 500,000 mines in Kuwait, and abandoned quantities of ammunition. As to the Coalition, as many as one third of its bombs and projectiles reportedly failed to detonate, the soft sand and the use of stockpiled or experimental weapons increasing the failure rate; and many U.S. anti-personnel submunitions, dropped into the battle area, remained a lethal hazard afterwards.[118] Substantial quantities of depleted uranium, which is toxic and mildly radioactive, remained littered around the battlefield; it had been used for armor piercing both in tank ammunition, and in bullets fired from aircraft. Its use caused concern both because of possible health consequences for soldiers exposed to it during the war, and because the remnants may constitute a health hazard in post-war Kuwait and Iraq.[119]

Some less-publicized aspects of environmental damage were potentially serious. According to some accounts, the movements of armored vehicles over the desert

landscape of Saudi Arabia, Kuwait and Iraq in the months of crisis and war left the desert surface looser than before, and may have increased the likelihood of severe sandstorms.

E. 'Gulf War Syndrome'

After the war, a number of people who had served in the war zone developed a variety of symptoms, some of which came to be grouped under one heading as "Gulf War syndrome." Various possible causes were mentioned, including some of the antidotes which had been administered (in injection and pill form) to reduce vulnerability to possible Iraqi use of chemical and biological weapons. Environmental factors were also mentioned as one possible type of explanation of at least some of the symptoms; it was suggested that the servicemen concerned had been exposed to dangerous chemicals, including possibly remnants of certain Iraqi chemical weapons deployed in Kuwait. Law suits and detailed investigations were undertaken in both the U.S. and U.K. On 27 July 1995 the Royal College of Physicians gave its official backing for further investigation into "Gulf War syndrome," the alleged war-related illness affecting more than 600 U.K. veterans (out of a total U.K. contingent of about 51,000) who served in the 1991 conflict. However, at the same time, the College concluded, on the basis of a clinical assessment of the medical checks on 200 veterans completed by the Ministry of Defence, that there was no single cause for the variety of illnesses suffered by the servicemen and women who had been examined.[120]

X. ACTION TO PROTECT THE ENVIRONMENT DURING AND AFTER THE WAR

During and after the war, the tackling of major environmental hazards in the whole area of the conflict involved difficult problems of diagnosis, prescription, organization and international cooperation.

There was much action to limit the effects of the oil spills in the Gulf. During the war, the U.S. Government (apart from its successful bombing on 26 January) took some effective action on an inter-agency basis. A huge containment and recovery effort was made by Saudi Arabia's Meteorology and Environmental Protection Administration and by the International Maritime Organization. Under auspices of the U.N. Environment Programme and the Regional Organization for the Protection of the Marine Environment (ROPME), a special oil clean-up ship, the *Ali-Wasit*, recovered 500,000 barrels of oil from the Gulf. Altogether, some two million barrels of oil were recovered.[121] A serious threat to the world's largest desalination plant, at al Jubayl in Saudi Arabia, was effectively countered by booms, nets and skimmers. Efforts were concentrated on protecting industrial and desalination plants, rather than on environmentally sensitive areas. There was much dispute over appropriate methods of tackling this and similar

disasters.[122] Although a thick tarry layer remained in the sands of the Saudi coast, the waters and wildlife of the Gulf made an impressive recovery, confirming to some observers the remarkable capacity of nature to survive disasters.[123]

As to the oil fires in Kuwait, there was debate about the adequacy of preparations during the war, by either the U.S. Government or the Kuwaiti Government in exile, to prepare for putting them out; and afterwards, the U.S. administration seemed to down-play the impact of the fires — perhaps because it wanted neither to seem obsessed about oil, nor to raise any doubts about the wisdom of a war which left such a pall.[124] After a slow start, work on controlling the oil fires gathered pace: the last fire was extinguished on 6 November 1991. There were inevitably missed opportunities, and many lessons to be learned from this episode so far as future oil fire disasters are concerned.[125] In 1992 there was criticism of the Kuwaiti authorities for further damaging the wells by rushing to bring them back on stream before they had time to recover.[126]

Numerous other aspects of the clean-up operations posed problems. In Kuwait, huge quantities of oil remained on the surface even after the fires were put out; some of this was effectively recovered. The most serious problem was unexploded weapons, including mines. In less than a year after the war, explosive ordnance reportedly killed or wounded some 1,250 civilians, and claimed fifty lives of demolition specialists.[126]

International bodies played a significant part in the clean-up efforts after the war. Under the auspices of the U.N. Environment Program (UNEP), a Plan of Action was drawn up to address the consequences of the conflict on the marine, coastal, atmospheric and terrestrial environments, and also the subject of hazardous waste in the region. This was adopted for implementation by the Council of ROPME on 16-17 October 1991. UNEP continued to play an important part in coordinating the efforts of the U.N. and other international organizations to assess the effects of the conflict, and to mobilize funds for assessment and rehabilitation programes.[128]

The aftermath of the war confirmed the need for governments and armed forces to take much more seriously the whole problem of limiting the effect of war on the environment, and putting right the damage that is done. Some problems of a very widespread character, not exclusively linked to the 1991 Gulf War, were addressed. For example, on 21 May 1993, the UNEP Governing Council approved a decision asking governments to establish a national environmental policy for the military sector, and requesting the Executive Director to report on the application of environmental norms for the treatment and disposal of hazardous wastes by military establishments.[129]

XI. POST-WAR LEGAL DEVELOPMENTS

A. The Question of Iraqi Responsibility

After the war, the U.N. Security Council held Iraq responsible for the damage caused by the invasion and occupation of Kuwait.[130] Resolution 686 of 2 March 1991 demanded that Iraq "accept in principle its liability under international law for any loss, damage, or injury arising in regard to Kuwait and third States, and their nationals and corporations, as a result of the invasion and illegal occupation of Kuwait by Iraq." It also required Iraq to "provide all information and assistance in identifying Iraqi mines, booby traps and other explosives as well as any chemical and biological weapons and material in Kuwait. . . ."

Resolution 687 of 3 April 1991 — the longest ever passed by the Security Council — contained many provisions relevant to the environment. It reaffirmed that Iraq "is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait." Further, stringent measures of disarmament — especially in the chemical, biological, missile, and nuclear fields — were imposed on Iraq by that and subsequent resolutions. Iraq was invited to affirm unconditionally its existing obligations under certain treaties, and to ratify the 1972 Biological Weapons Convention.[131]

Despite the above-mentioned resolutions, after the cease-fire almost nothing was heard from the Coalition governments on the subject of the major war crimes, and the personal responsibility of Saddam Hussein and colleagues for them. The Security Council resolutions were silent on the subject. Some Iraqis who had been caught in Kuwait at the end of the war were tried there in summer 1991 for various offenses in connection with the occupation, but the larger issue of the responsibility of the top Iraqi leadership was not addressed by the U.N. The question of Iraqi war crimes obviously embraces the whole range of offenses by Iraq, and not just those relating to the environment. However, the fact that major and wanton environmental damage was apparently going unpunished (except in the broader context of the attempt to secure reparations and compensation from Iraq via the U.N. Compensation Commission set up in 1991) was serious: an opportunity to spell out, in a clear and forceful manner, the criminal nature of certain Iraqi actions, including wanton damage to the environment, was missed. The Security Council's failure since the war to address the question of war crimes is all the more striking when the explicit reference to such crimes in Resolution 674 of 29 October 1990 is recalled.The reasons why the war crimes issue was not pursued are serious and need to be understood. Six stand out. First, there was wide agreement in the months before January 1991 that if there was to be a war for the liberation of Kuwait, it had to be a limited war for clearly limited and defined

objectives; that being so, the capturing of Saddam Hussein and colleagues, however criminal their acts, would not have easily fitted into the Coalition scheme of things. Second, the Iraqi leaders would have been difficult to arrest even if the Coalition action had been more offensive. Third, there were obvious difficulties in demanding Saddam Hussein's arrest as a war criminal at the same time as negotiating cease-fire terms with him; and in early March the cease-fire seemed more important. Fourth, there was nervousness in Washington, London, and other Coalition capitals about pressing any proposal for trials if opinion in countries in the region did not want to go down this road. Fifth, there was a question as to whether Iraqi actions before and after this war, including against Kurds and Marsh Arabs, should also be included. And sixth, in many Coalition capitals there was the hope, publicly expressed from the beginning of the war, that some kind of *coup d'état* or revolution within Iraq would solve the problem.[132]

However, as a minimum, it would have been possible for an authoritative statement to be made promptly, to the effect that major war crimes had occurred, involving *inter alia* grave breaches of the Geneva Conventions; that there was personal responsibility for these crimes; and that under the Geneva Conventions any State was entitled to prosecute. Such a statement would at least have had the effect of making it clear, at a time when interest was high, that Saddam Hussein and colleagues would be exposed to risk of prosecution if they set foot in other countries. It would also have given a little more consistency to the otherwise confusing positions taken by the leading Coalition powers and the Security Council.

The United States did eventually, in a war crimes report prepared under the auspices of the Secretary of the Army in January 1992 and issued by the U.N. in March 1993, put on the record a clear statement about Iraqi war crimes. This report, which was not widely noted at the time or subsequently, includes some references to various Iraqi actions which had a damaging effect on the environment, and treats them as violations of 1907 Hague Convention IV and of 1949 Geneva Convention IV.[133]

B. Development of International Law

The 1991 Gulf War, like many previous wars, led to much discussion as to whether, and if so how, international law might be developed to address more effectively the problems it had exposed. In particular, there was extensive consideration of the protection of the environment in warfare.

It was widely recognized that one war is too narrow a frame of reference for such discussions. After all, environmental damage in war can take many forms; and non-international armed conflicts must be taken into account. But the war did point to many general problems which needed to be addressed—for example, securing recognition and immunity (whether on the model of the ICRC, or civil

defense or other relief workers) for individuals and organizations concerned with monitoring and controlling environmental damage in peacetime or wartime — from measuring air pollution to rescuing injured wildlife.

Some of the immediate post-war discussion was centered on proposals for a new international treaty. The idea of a possible 'fifth Geneva Convention', to address directly the issue of environmental damage in war, was tentatively aired.[134] However, the weight of opinion among governments and international lawyers favored proceeding by more modest steps, including fuller ratification, exposition, implementation, and development of existing law. Resolutions in various bodies — being a way of enunciating general principles, and relating them to particular problems as they arise — were advocated as one means of assisting such purposes.[135]

After the war, some saw Additional Protocol I as centrally important so far as the protection of the environment in war is concerned. For example, a consultation in Munich in December 1991, mainly of environmental lawyers, began its final statement with the following recommendations:

> 1. The Experts Group strongly urged universal acceptance of existing international legal instruments, in particular of the 1977 Protocol ...
>
> 2. The Group observed that the current recognition that the environment itself is an object of legal protection in times of armed conflict implies that traditional perceptions of proportionality and military necessity have become obsolete.[136]

Although the Munich meeting also highlighted the importance of customary norms prohibiting devastation, it is doubtful whether it was wise to put such great emphasis on Additional Protocol I, and to go so far in rejecting certain other aspects of the laws of war, including traditional perceptions of proportionality.

The International Committee of the Red Cross was, not surprisingly, a main vehicle for taking forward the question of the effect of war on the environment. The ICRC gave consideration to this in the run-up to the XXVIth International Conference of the Red Cross and Red Crescent, which had been due to be held in Budapest in November 1991, but had to be postponed.[137] A draft resolution for the conference had, like earlier ICRC pronouncements, put great and perhaps disproportionate emphasis on Additional Protocol I. The resolution stated, *inter alia*, that the conference:

> *[C]alls on* States which have not yet acceded to or ratified the international treaties containing provisions for the protection of the environment in time of armed conflict rapidly to consider becoming party thereto, [and]
>
> *[E]ncourages* the ICRC, in co-operation with the organizations concerned, to examine the contents, limitations and possible shortcomings of the international rules for the

> protection of the environment in time of armed conflict and to make proposals in that respect...[138]

The U.N. General Assembly has supported such an approach. In December 1991, it suggested further consideration of the matter in conjunction with the ICRC.[139] The ICRC then convened a meeting of experts on the protection of the environment in time of armed conflict, held in Geneva in April 1992, and on 30 June submitted an 18-page report to the U.N. General Assembly. This emphasized the need to observe existing law in this area, and the ICRC's continued willingness to address the issue. It also identified a number of issues for further research and action.[140] This was one input into ongoing discussions in the Sixth Committee, resulting in a November 1992 resolution which was the General Assembly's most important pronouncement on the subject. It recognized the importance of the 1907 Hague Convention IV and the 1949 Geneva Convention IV, as well as later agreements. It stated unambiguously in its preamble "that destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law," and then in its operational part said that the General Assembly:

> 1. *Urges* States to take all measures to ensure compliance with the existing international law applicable to the protection of the environment in times of armed conflict;
>
> 2. *Appeals* to all States that have not yet done so to consider becoming parties to the relevant international conventions;
>
> 3. *Urges* States to take steps to incorporate the provisions of international law applicable to the protection of the environment into their military manuals and to ensure that they are effectively disseminated.[141]

Meanwhile, Principle 24 of the Rio Declaration of June 1992 had offered the anodyne formula, which was evidence of international concern but did not advance things significantly:

> Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.[142]

After 1992, the General Assembly continued to be seised of the protection of the environment in times of armed conflict, but simply as one part of the agenda item "U.N. Decade of International Law." It remained content to express support for work done under ICRC auspices. The ICRC convened two further meetings of experts, in January and June 1993, which led to a new report defining the content of existing law, identifying problems of implementation, suggesting what action

needed to be taken, and drawing up model guidelines for military manuals.[143] The General Assembly particularly supported the ICRC on this last point.[144]

XII. GENERAL ISSUES AND CONCLUSIONS

One war is too narrow a frame of reference for making hard and fast observations on the perennial and multi-faceted subject of the impact of war on the environment. Environmentalists and lawyers may, like generals, be open to the accusation of always fighting the last war. Vietnam produced very different environmental problems, and so will future wars. Both in peace and war, environmental damage can take many forms; can be very hard to forecast beforehand and to assess afterwards; can be prevented or reduced by a bewildering variety of different means; and is sometimes hard to rectify once it has happened.

However, the environmental issues raised by the 1991 Gulf War were of sufficient seriousness that they must form part of any attempt at overall assessment of how damage to the environment in war can be effectively limited. This statement by a Kuwaiti woman in late 1991 commands respect: "We won the ground war, we won the air war, but we lost the environmental war."[145] The 1991 Gulf War saw what were arguably the worst acts of deliberate environmental destruction of any war in this century. It also showed, in a more general way, how modern war involves a wide range of hazards to the human and natural environment; and how an increased level of concern with environmental issues, especially in Western societies, can influence public views about the legitimacy of certain military activities. The war, in short, saw new manifestations of problems relating to the environment which are likely to get more serious as societies develop.

A. Illegality of Certain Acts of Environmental Destruction

In warfare, actions damaging to the environment, when associated with wanton destruction not justified by military necessity, are contrary to well established and universally binding parts of the laws of war. Prohibitions of wanton destruction in major treaties, including the 1907 Hague Regulations and the 1949 Geneva Conventions, have a strong bearing on the environment, as do the underlying principles of the laws of war, evidence from past practice and trials, and certain customary rules. The environmental provisions in the ENMOD Convention, and in Additional Protocol I, should be seen as essentially supplementing these fundamental sources — and in the case of ENMOD as covering such special cases as the use of rain-making or defoliation techniques — rather than as constituting the core of the laws of war rules regarding the environment. As for the large body of general (peacetime) international law relating to aspects of the environment, decision-makers and commanders may be expected to pay due regard to its

provisions; and there is a need for a factual and pragmatic examination of how this body of law has in fact operated during armed conflicts.

B. Certain Iraqi Actions as Violations of the Laws of War

There is no serious disagreement with the proposition that, during the 1990-91 Gulf Conflict, the laws of war were violated by much Iraqi action of an environmentally damaging kind: the indiscriminate laying of mines, the creation of huge oil slicks, and the wanton destruction of oil facilities in the occupied territory of Kuwait. The Iraqi Government undoubtedly deserves the lion's share of blame for the environmental destruction, as it does for so much else in this war. Even if the point had not been stated beforehand as authoritatively, clearly and frequently as might have been wished, the Iraqi leaders should not have been in doubt that the environmental destruction in which they engaged was a violation of international law.

C. Did New Weapons Systems Cause Environmental Problems?

Some modern weaponry used in the war appears to have caused problems of an environmental character, mainly after the end of the war, to people in the former war zones. Unexploded cluster-bombs and depleted uranium armor-penetrators, are cases in point. Mines constituted a more old fashioned but perhaps more deadly threat. The Coalition bombing campaign involved use of some new weaponry to attack targets in Iraq, but in many cases this assisted accuracy and reduced collateral damage.

The most environmentally questionable acts in this war were not caused by new or especially deadly weaponry, but by selecting as targets sensitive installations — including oil installations and nuclear reactors. On the Iraqi side, the attacks on oil installations were not so much acts of combat as wanton destruction of property in occupied territory.

D. Why did Iraq Engage in Widespread Destruction?

Various reasons, both military and psycho-pathological, have been advanced to explain Iraq's wanton acts of destruction. Some elementary considerations deserve mention. First and foremost, Iraq simply wanted to destroy Kuwait if it could not control it. Retreating aggressors do often engage in wholesale destruction of the territory they had occupied—a fact which underscores the importance the international community attaches to rules against wanton (including environmentally damaging) destruction. The less powerful side in a war is often the side most tempted to resort to desperate expedients, even if those expedients involve an element of self-destruction, and offer no serious hope of turning defeat into victory. The desire to deny a victor the fruits of war, common enough anyway,

would have been reinforced if the Iraqi leadership believed its own propaganda to the effect that it was for the sake of oil that the U.S. went to Kuwait's rescue.

On a more fundamental level, Iraq's sense of alienation from international society—the product of a particular and in many ways debatable interpretation of its own history—made matters worse. Iraq (which was far from alone in this) had not incorporated into its martial ethos or military training the whole range of laws of war provisions to which it was bound by treaty. Further, Saddam Hussein may well have learned a terrible lesson from the Iran-Iraq war of 1980-88. From the international community's failure to react to the original attack on Iran in 1980, and from its failure to do anything much about Iraq's use of gas, he doubtless concluded that he could ignore international law and institutions with impunity. In addition, the occupation of Kuwait and the subsequent war took place against the background of the Israeli occupation of the West Bank, Gaza, and the Golan Heights—an occupation which was 23 years old in the summer of 1990. Rightly or wrongly, many Arabs saw the Israeli occupation as proof of the inefficacy or bias of international legal institutions. This may have contributed to Iraq's and the PLO's reckless disregard of international legal restraints in the crisis over Kuwait.

E. Did the Coalition Do Enough to Prevent Environmental Destruction?

A key question raised by the environmental destruction in this war (as also by the Iraqi use of hostages and treatment of prisoners of war) is how to secure understanding and implementation of existing law. In particular, how is the international community to respond before, during and after a war, when one belligerent apparently rejects basic provisions of the laws of war and/or appears unconcerned about environmental issues?

The Coalition powers did take laws of war issues, and environmental considerations, into account in many aspects of their actions. However, many problems remained. Attacks on such military targets as electric generating stations in Iraq had serious effects on water and sewage systems, leading to disease and loss of life. In addition, significant possibilities of emphasizing the laws of war as a means of inducing restraint between the belligerents may have been missed, especially in the field of environmental destruction.

At the start of Operation Desert Storm in January, should there have been a public statement from the Coalition about what international agreements, provisions and principles relating to the laws of war were beyond question in force? While there would have been hazards in such a course, Iraq did need reminding of its obligations; and different participants in the Coalition were in some cases bound by different treaties, so there were possibilities of inter-allied confusion.

In particular, it is remarkable that the Coalition powers apparently did not take further the warning against destruction of Kuwait's oilfields and installations that

had been contained in President Bush's letter to Saddam Hussein—the letter rejected at Geneva on 9 January 1991. It may be that on this, as on other matters relating to the 1991 Gulf War, much important activity was not in the public domain and will only emerge slowly and belatedly. The Pentagon's Interim Report said:

> Means to deter or restrict Saddam's capability to inflict environmental damage were limited. Assessments weighed whether aerial bombardment by the Coalition of key Kuwaiti facilities prior to Iraqi sabotage might cause more damage than it prevented or provoke the Iraqis to embark on an even more widespread campaign.[146]

This leaves it unclear how much consideration, if any, was given to the possibility of a serious effort—by major statements, by broadcast, and by leaflet—to spell out in advance to Iraqi officers at all levels the criminality of setting fire to oil wells out of vengeance, the personal responsibility they would bear if they participated in such acts, and the possibility of a tough response by the Coalition if Iraq persisted in such destruction. Of the millions of leaflets dropped by the Coalition powers on Iraqi forces, none discouraged environmental destruction.

There must be scepticism as to whether a clearer enunciation of the law, coupled with statements on the consequences of violating it, would have stopped Saddam Hussein or those under him in their environmentally destructive tracks. After all, the rules on the treatment of inhabitants of occupied Kuwait, and on treatment of prisoners of war, were perfectly clear, but this did not stop Iraq from cruelly mistreating such people and ignoring some of the most basic provisions of the 1949 Geneva Conventions. There can be no certainty that a stronger effort to impress on the Iraqi Government or Iraqi officers the illegality of environmental destruction would have worked; but it might have been worth trying.

The problem of inducing Iraqi restraint in the matter of environmental damage was in some ways similar to the problem of preventing Iraqi use of gas and chemical warfare. Both issues involved international legal standards. Both also raised the questions of how to actively deter criminal Iraqi action; and of how to ensure that Iraqi commanders at all levels were fully aware of their personal responsibility, and liability, for any violations.

The Coalition powers did make a serious and successful effort to dissuade Iraq from resorting to gas and chemical weapons. On the basis of the succinct prohibition of gas and chemical warfare in the 1925 Geneva Gas Protocol, they confirmed the illegality of resorting to such means, and adopted a strong deterrent posture, repeatedly threatening severe retaliation if such weapons were used. They took a similar line regarding nuclear and biological weapons, with special emphasis on destruction of Iraq's capacity.[147] In respect of the environment, their efforts do not appear to have been so consistent or successful. During this crisis, at least until the point where Saddam Hussein's environmental threats began to

be carried out on a large scale, there were few authoritative statements on the illegality of acts of wanton destruction causing massive environmental damage.

There are several possible explanations for what appears to have been a failure of the Coalition governments to make serious efforts to dissuade Iraq from wanton environmental destruction. In some countries, including the U.S. and U.K., it is possible that there may have been some residual elements of doubt as to whether such destruction was unambiguously against the written laws of war as they were in force in the Gulf, especially bearing in mind that none of the three laws of war treaties mentioning the environment by name was technically in force in this war. At all events, there was no short and undisputed text to be cited. It probably did not help that the Coalition leader, the U.S., had in the preceding years expressed criticisms of Additional Protocol I in general, and also, occasionally, of its environmental rules in particular.

The second, and more likely, explanation has to do with the urgency of other claims on the attention of the Coalition governments and armed forces, especially those of the U.S. They had more immediate worries: the ever-present possibility of gas, biological or even nuclear weapons being used against Coalition troops; the nightly Scud missile attacks on Israel and Saudi Arabia—in the former case posing the risk of the war getting out of hand; mistreatment of their prisoners in Iraqi hands; and the threat of terrorist attacks beyond the region. It is not surprising, even if it is regrettable, that environmental hazards, whose effects would be slower to develop, and which did not pose a threat to the Coalition's prosecution of the war, did not feature so prominently in governmental decision-making on the Coalition side. Allied governments might have been especially reluctant to get into a confused and dangerous process of threats and reprisals in respect of environmental damage, wanting perhaps to reserve their retaliatory threats as counters to more immediately worrying Iraqi actions. This raises the disturbing possibility that in war it is always likely to be so: there will always be more pressing issues than long-term protection of the environment. Often in life the important yields to the urgent.

A third possible level of explanation is that of the military mind-set. Military staffs may simply have lacked the training and mental framework to consider environmental damage as a major issue to be addressed in the planning and conduct of war. Overall, the performance of the Coalition side in the 1991 Gulf War and other recent wars suggests that any such military mind-set is slowly changing in favor of a greater awareness of the salience of environmental issues.

Further, it so happened in this war that issues which were environmental, idealistic and green (avoid fouling up the air and the waters) were also materialist and capitalist (avoid destruction of the oilfields and installations); the Coalition governments, anxious to demonstrate to their domestic and international critics

that this was not just a war for oil, may have been inhibited about placing heavy emphasis on the protection of the oilfields and installations.

F. Did Environmentalists Weaken Their Own Case?

Environmental organizations and individuals played a prominent part in debates before, during, and after the war. They did much to focus attention of the adverse environmental effects of the war, and to stimulate clean-up and preventive measures of various kinds. However, some of the approaches taken by some environmentalists may have weakened their own case, and illustrated certain hazards of single-issue campaigning.

First, in the weeks and months before the outbreak of war in January 1991, environmental hazards had been raised as a reason for not resorting to war at all, rather than as a reason for trying to get some restraint in the conduct of the war. Some environmentalists appeared reluctant to concede the possibility that ecological factors might have to be balanced against other powerful considerations, such as prevention of aggression, or maintenance of the credibility of international institutions. Almost all of those expressing concern about environmental hazards, being reluctant to contemplate war at all, had failed to make specific proposals of a kind which might have helped to limit any war which did occur.

Second, the tendency of some environmentalists in the weeks before the outbreak of the 1991 Gulf War to forecast utter environmental catastrophe on a global scale may have reduced their credibility and effectiveness. Prophecies of doom should be used sparingly if they are to have any credibility. In any event, although the oil spills and destruction of oil wells were at least of the magnitude forecast, the actual damage was local, mainly in Kuwait but also in Iraq and in other States which border on the Gulf. The Iraqi actions in respect of oil were criminal more because they were a stupid waste of good resources and caused extensive local damage than because they threatened the planet with catastrophic climate change. Further, a main environmental threat, the indiscriminate laying of mines, was also limited in scope rather than apocalyptic.

Third, to the extent that environmentalists and others put emphasis on Additional Protocol I, they may have had the effect of underplaying the significance of those earlier rules, from 1907 and 1949, which were a sounder basis for asserting the illegality of the Iraqi actions. It was unfortunate that Iraqi threats to set fire to oilwells and release oil on land and at sea were discussed in terms of a threat to the environment, rather than in the legally safer terms of wanton destruction.

G. Failure on Laws of War Issues at the United Nations

The U. N. did little, either before and during the war, to spell out in a clear and comprehensive way the laws of war rules which applied to the Iraqi occupation of

Kuwait, and which would apply to any war between the Coalition and Iraq. This was true of the Security Council, of the Secretariat, and also of the General Assembly, whose work on laws of war matters during this particular crisis (in marked contrast to some other conflicts) was practically non-existent.

There was no formal obligation on any part of the U.N. system, or indeed on the Coalition, to spell out publicly how laws of war would apply in this occupation and conflict. The difficulties of doing so in any detail are obvious. Others, including the ICRC, could and did perform this task. Yet there is bound to be an argument that this omission on the part of the U.N. was serious, especially so far as environmental issues were concerned. Iraq had already made environmental threats by September 1990: an authoritative clarification of the existing law (or at least its broad principles) by an international body representing governments would have done no harm and might even have been helpful.

H. Additional Protocol I After the 1991 Gulf War

The experience of the 1991 Gulf War raised questions about the desirability and adequacy of the provisions of Additional Protocol I, and about whether it should be ratified by those States which have hitherto held back. These questions are numerous and complex; only a few relating to the environment are mentioned here.

Of the three laws of war agreements concluded in 1977-81 which mention the environment, Additional Protocol I is the most important overall, and the most relevant to the facts of this war. However, Articles 35 and 55, with their specific provisions on the environment, would have been of limited relevance even if the treaty had been in full force. It is unnecessary to seek authority from these articles to assert the illegality of the particular oil-related crimes committed by Iraq in occupied Kuwait. The Iraqi actions were wanton destruction rather than a method of warfare; and they failed tests of military necessity and proportionality.

Does Additional Protocol I, in Articles 35 and 55, establish too high a threshold for environmental damage? As noted earlier, the Pentagon's Final Report went so far as to question whether the huge environmental damage inflicted by Iraq actually constituted those "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment" which are prohibited in the Protocol. Certainly the requirement that environmental damage must be "long-term," if this continues to be measured in decades, will limit the utility of the Protocol's environmental provisions. Indeed, in many situations other provisions of the Protocol, including those protecting civilian objects, probably have more relevance to environmental protection. It is not surprising that in these circumstances there have been suggestions that the terms "widespread, long-term and severe" in the Protocol

"belong to earlier concepts of environmental protection" and need to be re-interpreted or revised.[148]

If Additional Protocol I had been in force, would the general Coalition war effort have been hampered? A considered U.S. or U.K. military evaluation of this question would be bound to expose a wide range of problems. The war did undoubtedly throw into relief certain weaknesses in the Protocol. For example, the prohibitions on reprisals in Articles 51-56 are very sweeping, and raise the question whether powers should rule out in advance almost all right of reprisal when they are fighting an adversary with so little regard for legality as Saddam Hussein. However, as far as environmental issues are concerned, the prohibitions on reprisals may not be a problem, as it is hard to know what reprisals are appropriate in respect of environmental damage. The provisions of Article 54, on protection of objects indispensable to the survival of the civilian population, could have been cited in criticism of some Coalition bombing actions in Iraq: no bad thing, some would say, if it clarifies restraints on belligerents, and assists an informed debate about the principles of targeting. As regards Article 56, on protection of works and installations containing dangerous forces, the position is perhaps simpler: despite a few interpretations to the contrary, and for the reasons cited earlier, this article does not place a prohibition on attacks on the kinds of nuclear installations actually hit by the United States in the course of the war. Overall, the events of the war suggested the relevance and utility of many of the general principles and detailed provisions of Additional Protocol I.

In the event that some States, including possibly the U.S., remain unwilling to ratify the Protocol, there will be a need to fill the gap by giving what has long been promised, "some alternative clear indication of which rules they consider binding or otherwise propose to observe."[149] Despite the impressive work done in the crisis to bring the laws of war to bear on the actions of the U.S. and Coalition forces, the war did highlight the gap in U.S. policy towards the laws of war which was already evident. If the gap cannot be filled by ratification, then the "alternative clear indication" which is needed will have, among other things, to address matters relating to the environment. Revised military manuals, harmonized as far as possible with those of other countries, are a promising way of filling such a gap.

J. Proposals for New Convention on War and the Environment

The events of the 1991 Gulf War drew attention to the apparent absence of a simple, formally binding, set of rules about the impact of war on the environment. In its immediate aftermath there were, therefore, many serious arguments for some new attempt at codification. Yet there was always a question whether a new treaty was desirable and possible. The existing laws of war do say a lot, indirectly and directly, that bears on damage to the environment; clear and authoritative exposition of this was needed just as much as new legislation.

Negotiation for a new agreement on the environment was increasingly seen as hazardous. Such an attempt could run into fundamentally intractable problems (of which there have already been foretastes in other negotiations) about defining the natural environment; about defining damage to it; about working out exactly which environmentally damaging acts are forbidden; about distinguishing between intentional, collateral, and completely unexpected damage to the environment; about whether certain kinds of destruction, including even scorched earth, might be permissible in certain circumstances, including perhaps to a defending State within its own national territory; about establishing exactly what military-related activities could be permitted in any specially protected environmentally important areas; and about the applicability of existing international norms in non-international armed conflicts. The question of nuclear weapons would inevitably be raised, and it would probably be as hard as ever to bring such weapons within the framework of the laws of war. Other questions would be hardly less awkward. The powers which took part in the Coalition in the 1991 Gulf War, for example, were not about to assert that absolutely all destruction of oil targets was impermissible. They may also have feared that other sensitive issues would be raised in such negotiations.[150]

Reliance on the admittedly sparse rules and broad statements of principle already enshrined in many existing accords from 1907 to 1977 may indeed be more productive than aiming for a major new convention. Detailed rules have many advantages, but also weaknesses. They are vulnerable to the passage of time. Indeed, an examination of existing law and practice suggests that, so far as the environment is concerned, there is always a need for interpretation of rules and principles in the light of circumstances and new technical developments. In particular, there is often a need to balance environmental considerations against such factors as the importance of particular military objectives, and the need to save soldiers' lives.

K. Other Courses of Action

In any event, the ICRC, the majority of international lawyers who looked at the matter, and most governments, clearly favored the course that was adopted: not negotiating a new convention, but rather securing authoritative reports, General Assembly resolutions, draft military manuals and so on, drawing together existing principles and provisions in a simple and intelligible way.

This process has already yielded substantial results, including the ICRC/U.N. report of July 1993, and the General Assembly Resolutions in 1992-94.[151] However, some legal and practical questions have scarcely begun to be addressed. First, to what extent are peacetime environmental agreements formally applicable, or at least in practice applied, during armed conflicts and military operations? Second, can wartime environmental clean-up efforts (which may involve a wide variety of

highly specialized personnel drawn from different professions) be granted protection comparable, say, to that accorded in the 1949 Geneva Conventions to humanitarian relief efforts? Other issues, too, need further attention, including the lethal legacy of land-mines left by recent wars, and the use and disposal of environmentally harmful substances in weapons.

Overall, the difficulties which arose in the Gulf conflict, especially in matters relating to the environment, suggest that the main problem lies in ensuring that the law which exists is adequately understood, widely ratified, sensibly interpreted, and effectively implemented. The law's purposes, principles and content need to be properly incorporated into the teaching of international law and relations; into military manuals and training; and into the minds and practices of political leaders, diplomats and international civil servants.

Any wars in future decades and centuries are likely to be in areas where there are high chances of the environment being affected. This is mainly because economic development results in the availability of substances (oil, chemicals, and nuclear materials being the most obvious examples) which can very easily be let loose, whether by accident or by design, on the all-too-vulnerable land, air, and water on which we depend; because some parts of the natural environment are becoming more constricted and fragile due to peacetime trends; because much of the environment in which we live (especially water supplies) depend on the smooth running of an infrastructure easily disrupted by war; and also because some weapons (nuclear weapons being only the most extreme case) may themselves have terrible effects on the environment. For all these reasons, the environmental effects of war, dramatized by the 1991 Gulf War, are likely to remain a serious problem. Even if it can never be completely solved, the problem needs to be tackled, not least within a laws of war framework, and more consistently than it was in the Gulf conflict of 1990-91.

Notes

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1. This is an extensively revised and updated version of Roberts, *Failures in Protecting the Environment in the 1990-91 Gulf War, in* THE GULF WAR 1990-91 IN INTERNATIONAL AND ENGLISH LAW (Rowe ed. 1993). An earlier draft had been presented at the International Committee of the Red Cross (ICRC) Meeting of Experts on the Protection of the Environment in Time of Armed Conflict, Geneva, 27-29 April 1992. The author also attended the two subsequent ICRC Meetings of Experts in January and June 1993. The participants in these meetings helped me greatly, as has Bill Arkin in 1995.

2. Surveys in 1991-92 reflecting the growing interest: Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, Int'l Rev. of the Red Cross, at no. 285, Nov.-Dec. 1991; articles by Bothe, Dahl and Szasz *in* DISARMAMENT, United Nations, vol. xv, no. 2, 1992, 101-61; and ENVRIONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT? (Plant ed. 1992) (based on the 3 June 1991 London Conference on the Protection of the Environment in Time of Armed Conflict).

3. Protocol I Additional to the Geneva Conventions Relative to the Protection of Victims of International Armed Conflicts, with Annexes, 12 Dec. 1977, *reprinted in* 16 I.L.M. 1391 (1977).

4. For one look at a range of issues raised by this occupation and war, *see* Roberts, *The Laws of War in the 1990-91 Gulf Conflict*, Int'l Sec., Winter 1993/94 at 134-81.

5. A few examples, from the Book of Deuteronomy to the late 17th Century, are *in* Green, *The Environment and the Law of Conventional Warfare*, paper for Conference on the Use of the Environment as a Tool of Conventional Warfare, Ottawa, 10-12 July 1991, at 1-2.

6. See especially the characteristic plea for restraint *in* Book III, Chapter XII, *Moderation in Laying Waste and Similar Things, in* Grotius, DE JURE BELLA AC PACIS (1625), (Kelsey trans. 1925), at 745-56. Earlier (in Book III, Chapter IV) Grotius had said that by the law of nations it was forbidden to poison waters, though it might be legitimate to divert a river or cut a spring; *id.*, at 652-53.

7. Best, *The Historical Evolution of Cultural Norms Relating to War and the Environment in*, CULTURAL NORMS, WAR AND THE ENVIRONMENT, (Westing ed. 1988), p. 18. He defines the 'anthropogenic environment' as "what humans had wrought from the natural environment"—*e.g.* crops, orchards, herds of livestock, and wells; *ibid* at 20.

8. Cruttwell, A HISTORY OF THE GREAT WAR 1914-1918, 1934, 297-98. Norton Griffiths (MP for Wednesbury 1910-18) was awarded "GSO 1st grade on special mission in connection with corn and oil stores in Roumania, 1916," and was also made Commander Grand Star of Roumania; WHO WAS WHO, vol. III, (1947), at 560.

9. *See, e.g.* WESTING, ECOLOGICAL CONSEQUENCES OF THE SECOND INDOCHINA WAR, (1976).

10. Aldrich, *Prospects for United States Ratification of Additional Protocol I to the 1949 Geneva Conventions*, 85 A.J.I.L. 14 (1991).

11. Declaration of the United Nations Conference on the Human Environment, Stockholm, 1972, U.S. Doc. A/Conf. 48/14; *reprinted in* 11 I.L.M. 1416 (1972).

12. Rio Declaration on Environment and Devlopment, 1992, U.N. Doc. A/Conf. 151/5/Rev.1, *reprinted in* 31 I.L.M. 874 (1992).

13. Antarctic Treaty, 1959, 12 .U.S.T. 794; T.I.A.S. 4780.

14. Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, 1963, 14 U.S.T. 1313; T.I.A.S. 5433.

15. Convention on the Prohibition of the Development Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and or their Destruction, 1972, 26 U.S.T. 583; T.I.A.S. 8062.

16. International Convention for the Prevention of Pollution of the Sea by Oil, 1954, 12 U.S.T. 2989; T.I.A.S. 4900, Art. IV(1)(a). Neither Iraq nor Iran were parties to this treaty at the time of the 1990-91 Gulf Conflict.

17. 1982 United Nations Convention on the Law of the Sea, *reprinted in* 21 I.L.M. 1261 (1982).

18. The text of the Kuwait Regional Convention is *reprinted in* 17 I.L.M. 511 (1978), and INTERNATIONAL ENVIRONMENTAL LAW: PRIMARY MATERIALS, (Molitor ed. 1991) at 273-78. On the clean-up operations and ROPME's part in them, *see* text at nn. 121 & 128, *infra*.

19. Prof. Vorontsov, USSR Minister of the Environment and Nature Management, Vice-President of the Russian Academy of Natural Sciences, in a fax of 24 May 1991 to Dr. Leipold of Greenpeace International in London; circulated at the 3 June 1991 London Conference, and *reprinted in* ENVIRONMENTAL PROTECITON AND THE LAW OF WAR, *supra*, n. 2 at 242.

20. Modern military manuals referring to some or all of these principles include U.S. Department of the Army, *The Law of Land Warfare*, FM 27-10, (1956) at 3-4; United Kingdom, *Manual of Military Law*, Part III, HMSO, (1958), at pp. 1-2; U.S. Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP 9, (1987), at 5-1. On the history of principles of the laws of war, *see* particularly JOHNSON, JUST WAR TRADITION AND THE RESTRAINT OF WAR: A MORAL AND HISTORICAL INQUIRY, (1981), at 196-228.

21. Falk, *The Environmental Law of War: An Introduction, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR, *supra* n. 2, at 85.

22. *Id.*, at 16

23. "Because damages to the environment affect the civilian population, they are, under certain circumstances, prohibited." Bothe, *War and Environment, in* ENCYCLOPAEDIA OF PUBLIC INTERNATIONAL LAW, vol. 4, (1982) 291.

24. Declaration Renouncing the use of in time of War of Explosive Projectiles under 400 Grammes in Weight; St. Petersburg, 1868, 1 A.J.I.L. (Supp.) 95.

25. Hague Convention No. IV Respecting the Laws and Customs of War on Land, 1907, 36 Stat. 2227; T.S. 539.

26. The Martens Clause was adopted at the 1899 and 1907 Hague Conferences principally because the powers had not been able to agree on detailed rules on certain problems relating to occupied territories and the treatment of resistance: but the Clause was written in broad terms, and has been widely seen as having a broader application. Its wording is reflected in articles and preambles in a number of subsequent treaties, including the four Geneva Conventions of 1949, Additional Protocols I and II of 1977, and the U.N. Conventioanl Weapons Convention of 1981.

27. Best, *supra* n. 7, at 20.

28. Hague Convention No. V Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, 1907, 36 Stat. 2310; T.S. 540; and Hague Convention No. XIII Concerning the Rights and Duties of Neutral Powers in Naval War, 1907, 36 Stat. 2415; T.S. 545.

29. Protocol for the Prohibition on the use in War of Asphyxiating, Poisonous, or Other Gases and of Bacteriological Methods of Warfare, 1925, 26 U.S.T. 571; T.I.A.S. 8061.

30. U.N. General Assembly Resolution 2603A (XXIV) of 16 Dec. 1969.

31. Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 1949, 6 U.S.T. 3516; T.I.A.S. 3365.

32. COMMENTARY ON GENEVA CONVENTION IV, (Pictet ed. 1958), at 302.

33. Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, 1949, 6 U.S.T 3114; T.I.A.S. 3362; and Geneva Convention for the Amelioration of the Condition of Wounded, Sick, and Shipwrecked Members of Armed Forces at Sea, 1949, 6 U.S.T. 3217; T.I.A.S. 3363.

34. Convention for the Protection of Cultural Properly in the Event of Armed Conflict (with Regulations and Protocol), 1954, 249 U.N.T.S. 240.

35. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, 31 U.S.T. 333; T.I.A.S. 9614.

36. For an analysis of the Convention and of the general issue of environmental warfare in the sense of using the forces of the environment as weapons, *see* ENVIRONMENTAL WARFARE: A TECHNICAL, LEGAL AND POLICY APPRAISAL, (Westing ed. 1984).

37. Protocol I Additional to the 1949 Geneva Conventions Relating to the Protection of Victims of International Armed Conflicts, with Annexes, 1977, *reprinted in* 16 I.L.M. 1391 (1977).

38. COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, (Sandoz *et al*, eds, 1987) 663.

39. BOTHE, PARTSCH & SOLF, NEW RULES FOR VICTIMS OF ARMED CONFLICTS: COMMENTARY ON THE TWO 1977 PROTOCOLS ADDITIONAL TO THE GENEVA CONVENTIONS OF 1949, (1982), at 348.

40. Official Records of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, Bern, Fed. Pol. Dep., (1978), vol. VI, at 118. On U.S. attitudes to the environmental provisions, *see infra*, text at nn. 57 & 60.

41. COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* n. 38 at 415, 417-18 and 664. The background to Articles 35 and 55 is also very usefully discussed by Kiss, *in Les Protocoles Additionnels aux Conventions de Genève de 1977 et la Protection de Biens de l'environnement, in* STUDIES AND ESSAYS IN INTERNATIONAL HUMANITARIAN LAW AND RED CROSS PRINCIPLES IN HONOUR OF JEAN PICTET, (Swinarski ed., 1984) at 181-92.

42. COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* n. 38 at 662.

43. For a detailed and impressive critique of Article 56, see the book-length article by Parks, *Air War and the Law of War*, 32 Air Force L. Rev., 202-18. Dr. Parks is Chief of the International Law Team, International Affairs Division, Office of the Judge Advocate General of the Army. Dr. Parks is also author of the forthcoming revised U.S. Department of the Army FM 27-10, entitled *The Law of War*.

44. Parks, *Air War*, *supra*, at 212.

45. On this point, *see* especially Aldrich, *supra* n. 10 at 12-13. Aldrich had been the head of the U.S. delegation to the conference that adopted the 1977 Additional Protocols. The relevance of Art. 56 to the Coalition bombing in the 1991 Gulf War is explored further *infra*, text accompanying n. 113.

46. On the meaning of Art. 56, Arkin *et al.* have asserted unconvincingly: "The examples given in Protocol I, such as nuclear electrical generating stations, are not meant to be exhaustive, and a liberal construction could say that the release of the force of the oil fires and spills are covered." Arkin, Durrant, & Cherni, *On Impact: Modern Warfare and the Environment — A Case Study of the Gulf War* (a study prepared for the 3 June 1991 London Conference on the Protection of the Environment in Time of Armed Conflict), May 1991, at 140.

47. COMMENTARY ON THE ADDITIONAL PROTOCOLS, *supra* n. 38 at 668-69.

48. Additional Protocol I, *supra* n. 37, Art. 61, para. (a), items ix, xii and xiv.

49. Greenwood, *Customary Law Status of the 1977 Geneva Protocols*, in HUMANITARIAN LAW OF ARMED CONFLICT: CHALLENGES AHEAD, (Delissen & Tanja eds. 1991), at 102-03, 105, 108 & 110. *See also* his chapter, *Customary International Law and the First Protocol of 1977 in the Gulf Conflict, in* THE GULF WAR 1990-91 IN INTERNATIONAL AND ENGLISH LAW, (Rowe ed. 1993), at 63-88.

50. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May Be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, 1981, *reprinted in*, 19 I.L.M. 1524 (1981).

51. Charter of the International Military Tribunal, concluded in London in August 1945, Article 6(b) — extract. Full text in *The Trial of German Major War Criminals: Proceedings of the International Military Tribunal Sitting at Nuremberg Germany*, Part 22, London, HMSO, 1950, at 412-13. The section of the judgment dealing with Jodl's responsibility for destruction is at 517. *See also* the numerous references to scorched earth in Part 23 (the index volume), at 620.

52. United Nations War Crimes Commission, *History of the United Nations War Crimes Commission and the Development of the Laws of War*, London, HMSO for UNWCC, 1948, at 496.

53. United Nations War Crimes Commission, *Law Reports of Trials of War Criminals*, London, HMSO, vol. VIII, 1949, at 69. The Norwegian criticisms of the judgment are mentioned in Best, WAR AND LAW SINCE 1945 (1994) at 328-30.

54. For one approach on an important issue in the Iran-Iraq war, *see* Jordan, *Petroleum Transport Systems: No Longer a Legitimate Target*, 63 Nav. War Col. Rev. 47-33 (Spring 1990).

55. President Reagan's letter of transmittal of Additional Protocol II to the U.S. Senate, Treaty Doc. No. 2, 100th Cong., 1st Sess., at III (1987), *reprinted in* 81 A.J.I.L. 910-12.

56. On 22 January 1987 at the Sixth Annual American Red Cross-Washington College of Law Conference on International Humanitarian Law, *in* 2 Am. U. J. Int'l L. and Pol'y 420 & 422. For Judge Sofaer's similar remarks on consultations with allies, *see* 471.

For subsequent similar statements by Matheson, *see* A.S.I.L., *Proceedings of the 81st Annual Meeting, Boston, Massachusetts, April 8-11, 1987*, at 28 & 29.

For a subsequent authoritative account of the state of U.S.-led discussions to fill the gap left by U.S. non-ratification of Additional Protocol I, *see* the major critique of the Protocol by Parks, *supra* n.43 at 222-23.

57. Am. U. J. Int'l L. and Pol'y, *supra* n. 56 at 424.

58. *Loc. cit.*, 436. *See also* A.S.I.L., *Proceedings*, *supra* n. 56, at 29-31.

59. Am. U. J. Int'l L. and Pol'y, *supra* n. 56, at 427 and 434 (Matheson); and 468-9 (Sofaer). For U.S. criticisms of Article 56 *see also* Parks, *supra* n. 43.

60. Aldrich, *supra* n. 10, at 14. This article, a response to the critiques of the Protocol, is in some respects incomplete. Referring to Matheson's remarks in January 1987, Aldrich says simply: "With respect to the articles concerning the environment, no explanation was offered." (p. 12.) This does slightly less than justice to Matheson's remarks as cited above. Curiously, Aldrich does not refer at all to one major U.S. critique of Additional Protocol I — Parks, *Air War*, *supra* n. 43.

61. Greenwood, *Customary Law Status of the 1977 Geneva Protocols*, *supra* n. 49, at 95. *See also* his discussion of the agreement between Coalition States on the rules of engagement and targets in his chapter on *Customary International Law and the First Protocol of 1977 in the Gulf Conflict*, *supra* n. 49, at 66, 72-75, & 83-84.

62. Hague Convention No. IV Respecting the Laws and Customs of War on Land (with annexed Regulations), 1907, 36 Stat. 2227; T.S. 539; Hague Convention No. V, *supra* n. 28; Hague Convention No. VIII Relative to the Laying of Automatic Contact Mines, 1907, 36 Stat. 2332; T.S. 541; Hague Convention No. IX Concerning Bombardment by Naval Forces in Time of War, 1907, 36 Stat. 2351; T.S. 542; and Hague Convention No. XIII, *supra*, n. 28.

63. *Supra*, n. 29.

64. Geneva Convention No. I, *supra*, n. 33; Geneva Convention No. II, *supra*, n. 33, Geneva Convention III Relative to the Treatment of Prisoners of War, 1949, 6 U.S.T. 3316; 75 U.N.T.S. 135; and Geneva Convention No. IV, *supra* n. 31.

65. *Supra*, n. 34.

66. *Supra*, n. 35.

67. *Supra*, n. 3.

68. Depositary information on Additional Protocol I is from ICRC, List of Signatures, Ratifications, Accessions and Successions as at 31 December 1990, 14 Jan. 1991. In the period to 30 April 1991, there was no change affecting the depositary information given here: update *in Dissemination*, ICRC, July 1991, at 19.

69. *Supra*, n. 50.

70. ICRC, THE GULF 1990-1991: FROM CRISIS TO CONFLICT, ICRC Publications, 1991, at 4-5, 10-13 & 43-44. This publication summarizes the following ICRC press releases stressing the applicability of international humanitarian law in this crisis: 1640 of 2 Aug. 1990; 1657 of 14 Dec. 1990; 1658 of 17 Jan. 1991; and 1659 of 1 Feb. 1991. These public appeals were reported in newspapers at the time: *see e.g.* report of the previous day's ICRC press release *in* The Independent, (London), Jan. 18, 1991, at 8.

71. For full text of the ICRC *Note Verbale* and Memorandum dated 14 Dec. 1990, *see* 280 Int'l Rev. of the Red Cross, Jan.-Feb. 1991, at 22-6. On 11 January 1991 the U.S. Department of Defense sent a 3-page message to all commands giving the text of the ICRC Memorandum (which had been given to the U.S. Government on 10-11 December), along with some detailed critical comments clarifying U.S. interpretations of the Memorandum. Other States do not appear to have reacted so fully. Copy of U.S. message is on file with author.

72. Full text in ICRC, THE GULF 1990-1991, *supra*, n. 70 at 44; and in 280 Int'l Rev. of the Red Cross, *supra* n. 71, at 27.

73. These efforts are described in detail by Angelo Gnaedinger, the ICRC's Delegate General for the Middle East and North Africa, Department of Operations, in ICRC, THE GULF 1990-1991, *supra*, n. 70 at 10-11. *See also* the article therein by Girod at 12.

74. Report from Patrick Cockburn in Baghdad, The Independent, (London), 24 Sep. 1990, at 1.

75. *Id.*

76. Howe, *NATO and the Gulf Crisis*, 33 Survival, May/June 1991.

77. Reports of the Conference on the Potential Environmental Effects of a Gulf War, held in London on 2 Jan. 1991, in The Daily Telegraph, (London), 3 Jan. 1991, at 10; and The Independent, (London), 3 Jan. 1991, at 1 & 3.

78. Text of this and other statements by Mr. Wakeham are *in* House of Commons, Foreign Affairs Committee, Third Report, THE MIDDLE EAST AFTER THE GULF WAR, vol. II, 9 Jul. 1991, at 247-8. *See also* the Note (adopting a roughly similar line, but more detailed) by the Meteorological Office on "Possible Environmental Effects of Burning Oil Wells in Kuwait," dated 14 Jan. 1991, *ibid.*, at 249; and the Foreign Office memorandum on "Environmental and Economic Consequences of the Gulf Conflict," dated 28 Jan. 1991, *ibid.*, at 246-47.

The existence of the Note by the Meteorological Office was known at the time. In a written answer in the House of Commons on 17 January, Mr Archie Hamilton, a junior Defence Minister, said: "The Meteorological Office has produced a note for the government on the possible environmental impacts of burning oil wells of Kuwait. I am placing a copy of this note in the Library of the House." Hansard, vol. 183, col. 546, 17 January 1991.

79. Letter dated 5 Jan. 1991 from President Bush to President Hussein, as published in U.S. Department of State Dispatch, Jan. 14, 1991, at 25. (A version of the letter was also published in The Sunday Times, (London), Jan. 13, 1991, at 1.) James Baker said at a press conference at Geneva on 9 January immediately after his long meeting with Tariq Aziz: "He read it very slowly and very carefully, but he would not accept it nor would the Iraqi Embassy in Washington accept an Arabic courtesy translation." U.S. Department of State Dispatch, *id.*, at 22.

In "The Washington Version," Part 3, a program about the 1991 Gulf War shown on BBC television on 18 Jan. 1992, James Baker recounted that Tariq Aziz, having spent 12-15 minutes reading the letter, said that he could not accept it: "It is not written in the language heads of State use to communicate with each other." At the end of the 6-7 hours meeting, throughout which the letter had lain on the table, Aziz again refused an invitation to take it.

Later in the same program Lawrence Eagleburger, Deputy Secretary of State, said of Saddam Hussein: "One message I think he did get is that if he were to resort to chemical weapons he would regret it, and regret it intensely." Eagleburger was speaking in a general way, not referring specifically to the 9 January Geneva meeting.

In a talk with the author in Washington on 9 May 1984, James Baker indicated that the consideration which probably weighed with Saddam Hussein was the nuclear one, rather than a threat of retaliation in kind (*e.g.* with chemical weapons) or a threat to occupy Baghdad. He has reiterated this view, adding some detail about the warnings issued, in his book THE POLITICS OF DIPLOMACY: REVOLUTION, WAR AND PEACE (1995).

80. President Bush, address to the nation, broadcast from the White House at 9 p.m. EST on 16 January 1991, U.S. Department of State Dispatch Jan. 21, 1991, at 37-38.

81. Quoted in Keeva, *Lawyers in the War Room*, 77 A.B.A.J. 52 (1991). The author goes on to suggest: "In the wake of the Persian Gulf War, there is little doubt that the role of lawyers in military operations has changed irrevocably." *Id.* at 59. *See also* the passage on "Role of Legal Advisers" *in* Annex O of U.S. Department of Defense, CONDUCT OF THE PERSIAN GULF WAR: FINAL REPORT TO CONGRESS, (1992), at 607.

82. Text published in 264 Scientific American 9, May 1991, at 9. A DOE spokesperson is quoted as saying that the policy was not intended to "muzzle the debate," but because discussions of the possible effects of fires and oil spills could "give the Iraqis ideas."

83. Hansard, vol. 183, col. 980, 17 Jan. 1991.

84. Report from Christopher Bellamy in Riyadh, The Independent, (London), Jan. 28, 1991, at 1.

85. Arkin *et al.*, ON IMPACT, *supra* n. 46 at 62-3 says five Iraqi tankers were involved. In 1995 Mr Arkin advised me that the number was three.

86. On 25 January 1991 Marlin Fitzwater, the White House spokesman, said the oil spill at that time taking place in the Gulf was "something that far exceeds any kind of tanker spill that we've ever witnessed." He indicated that it was several times bigger than the *Exxon Valdez* disaster in Prince William Sound, Alaska, in March 1989. This had dumped some 11 million gallons of crude [over 250,000 barrels]. The biggest oil spill disaster up to that point had been an oil rig accident in the Gulf of Mexico in 1979, which spilled 535,000 tons [over 3,750,000 barrels]; report in The Independent, (London), Jan. 26, 1991, at 1. (Figures in square brackets added.)

On 26 January, reporting from Riyadh on the successful U.S. bombing raid to reduce the flow of oil, Christopher Bellamy said: "But even if the flow has been stopped, between five and 10 million barrels of thick crude oil have already poured into the Gulf from Kuwait creating an environmental disaster." He also reported what were apparently official Saudi estimates that the slick was "15 times the size of that produced by the *Exxon Valdez* supertanker disaster in Alaska in March 1989"; The Independent, (London), Jan. 28, 1991, at 1.

On 28 January, Saudi Arabia's Oil Minister, Hisham Nazer, said that Iraq had pumped more than 11 million barrels of crude oil into the Gulf; The Independent, (London), Jan. 29, 1991, at 1.

87. On the weekend of 9-10 February 1991 Derek Brown, environmental co-ordinator for the Bahrain Petroleum Company, flew over the Saudi coast. He subsequently said: "There are plenty of booms in place to protect harbours and installations, and there is a big clean-up operation going on. But the whereabouts of the enormous oil slicks reported a fortnight ago are a complete mystery....There is certainly a severe pollution problem but it does not look like an environmental catastrophe at the moment." Report, *in* The Independent, (London), Feb. 14, 1991, at 5.

88. In April 1992, the Pentagon said: "Between seven and nine million barrels of oil were set free into the Gulf by Iraqi action." — FINAL REPORT TO CONGRESS, *supra* n. 81 at 624. In the same month, a Greenpeace paper by William M. Arkin, *Gulf War Damage to the Natural Environment*, at 2-3, gave the same figure, but mentioned additionally that

smaller quantities of oil continued to leak into the Gulf from a number of sources until May or early June 1991. An assessment carried out under the auspices of the Regional Organization for the Protection of the Marine Environment (ROPME) said that between 6 million and 8 million barrels of oil had been spilled in the Persian Gulf waters; summarized in YEARBOOK OF THE UNITED NATIONS 1992, at 690. *See also* the various figures in the publication of the Kuwait Environment Protection Council, STATE OF THE ENVIRONMENT REPORT: A CASE STUDY OF IRAQI REGIME CRIMES AGAINST THE ENVIRONMENT, Nov. 1991, at 28-30. For a very low figure (1.5 million barrels), *see* letter by Samir S. Radwan in 350 Nature 456 (April 1991).

89. A short survey of ecological damage is Greenpeace's THE ENVIRONMENTAL LEGACY OF THE GULF WAR, (1992). It is weak on legal issues, but has useful reports of investigations and a wide range of references. The figure of at least 30,000 marine birds perished is from the ROPME assessment (*see supra*, n. 88). *See also* Plant, *Legal Aspects of Marine Pollution during the Gulf War*, 7 Int'l J. Estuarine & Coastal L. 217-31 (1992).

90. The destruction of oil installations had certainly commenced by 22 January. On that day "U.S. military authorities accused Iraq of setting fire to installations at three oil fields in Kuwait. The U.S. command in Riyadh released aerial photographs which, it said, showed Iraq had blown up parts of al-Wafra oil field on Kuwait's border with Saudi Arabia." The Independent, (London), Jan. 23, 1991, at 1.

See also Counsell, *Blowing up oilfields is "easy task"*, The Independent, (London) Jan. 23, 1991, at 2.

91. Kuwait Environment Protection Council, STATE OF THE ENVIRONMENT REPORT, *supra*, n. 87 at 1, 2-3, & Table in Fig. 2. This states that after 26 February, 613 wells were on fire, 76 gushing, and 99 damaged. It quotes the Ministry of Oil in Kuwait as stating that 6 million barrels of oil per day, and 100 million cubic meters of gas a day, were being lost. THE ENVIRONMENTAL LEGACY OF THE GULF WAR, *supra* n. 89at 17 & 38, gives figures of between 2.3 and 6 million barrels per day.

92. Letter from Permanent Mission of Kuwait at U.N. to the U.N. Secretary-General, 12 July 1991; text *in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR, *supra*, n. 2, at 265.

93. Confirmed by the Pentagon *in* U.S. Department of Defense, CONDUCT OF THE PERSIAN GULF CONFLICT: AN INTERIM REPORT TO CONGRESS, July 1991, at 13-1 & 13-2; and *in* the 1992 FINAL REPORT TO CONGRESS, *supra* n. 80 at 625.

94. *Id.*, INTERIM REPORT TO CONGRESS, at 13-2; *see also id.* FINAL REPORT TO CONGRESS, at 625: "As with the release of oil into the Persian Gulf, this aspect of Iraq's wanton destruction of Kuwaiti property had little effect on Coalition offensive combat operations. In fact the oil well fires had a greater adverse effect on Iraqi military forces."

95. *Id.*, at 12-6, 12-7 & *id.* 13-1.

96. Points emphasized in FINAL REPORT TO CONGRESS, *Id.*, at 625. Also, the technical specifications for every oil well in Kuwait were reportedly destroyed; McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, paper at the Naval War College Symposium, Newport, RI (Sept. 1995), at 80.

97. President Bush, news conference (Jan. 25, 1991), U.S. Department of State Dispatch, Feb. 4, 1991, at 68.

98. Sunday Times, (London), Jan. 27, 1991, at 24. The term "environmental terrorism" was also used by White House Press Secretary Marlin Fitzwater on 13 February; U.S. Department of State Dispatch, Feb. 18, 1991, at 114.

99. Hansard, vol. 184, col. 655, Jan. 28, 1991.

100. Hansard, vol. 186, cols. 285 & 286, Feb. 22, 1991.

101. President Bush, Statement made at the White House, Feb. 22 1991; U.S. Department of State Dispatch, Feb. 25, 1991, at 125.

102. Reports *in* The Independent, (London), Feb. 23, 1991, at 1.

103. *See e.g.* THE ENVIRONMENTAL LEGACY OF THE GULF WAR, *supra*, n. 89 at 17-22 & 34.

104. Horgan, *Up in Flames*, 264 Sci. Am. May 1991, at 7-9; Brown, *The Blazing Oilwells of Kuwait*, The World Today, June 1991, at 47; Johnson *et al.*, *Airborne Observations of the Physical and Chemical Characteristics of the Kuwait Oil Smoke Plume*, 353 Nature, 621, (Oct. 1991). The ROPME assessment, as summarized in YEARBOOK OF THE UNITED NATIONS 1992, at 690. There is, curiously, no systematic discussion of this subject in Arkin *et al.*, ON IMPACT *supra*, n. 46.

Preliminary U.N. estimates in November 1991 were that 2 billion barrels of the country's oil reserves had been lost; International Herald Tribune, (Paris), Nov. 21, 1991.

105. This is the clear conclusion of the Pentagon's INTERIM REPORT TO CONGRESS, at 12-6; and FINAL REPORT TO CONGRESS, *supra* n. 81 at 625. *See also* the fuller treatment, suggesting possible changes to the ENMOD Convention, in Fauteux, *The Gulf War, the ENMOD Convention and the Review Conference*, U.N.I.D.I.R. Newsletter, July 1992 at 6-12. The ENMOD Review Conference in Geneva, 14-18 September 1992, did not propose any modification of the Convention, which is likely to remain of limited practical significance; and the conference noted that no party had invoked the provisions of Article V dealing with international complaints.

106. Interim Report to Congress, *supra* n. 93, at 2-5 & 12-6.

107. Final Report to Congress, *supra* n. 81, at 625.

108. For such a proposal, see Peter Schweizer, *The Spigot Strategy*, The New York Times, Nov. 11, 1990. There are no tripartite treaties between the riparian States of the Tigris-Euphrates basin (Iraq, Syria and Turkey) on the allocation or exploitation of the river waters, but certain treaties on regional matters do have some implications as regards development projects on these rivers. In January-February 1990, Turkey had impounded Euphrates waters to fill the Atatürk dam, but although there appear to have been some temporary flow reductions, it does not seem to have done so during the Gulf Conflict of 1990-91. Natasha Beschorner, *Water and Instability in the Middle East*, Adelphi Paper 273, International Institute for Strategic Studies, London, Winter 1992/93, at 39-43.

109. *Report of the U.N. Secretary-General to the President of the Security Council*, Mar. 20, 1991 (U.N. Doc. S/22366). The report was by Under-Secretary-General Martti Ahtisaari.

For the view taken by Coalition forces that the entire electricity generation and distribution system was a lawful target, see Greenwood, *Customary International Law and the First Geneva Protocol of 1977 in the Gulf Conflict*, in THE GULF WAR 1990-91, *supra*, n. 1 at 72-4. For fuller consideration of methods, *see* Hampson, *Means and Methods of Warfare in the Conflict in the Gulf*, *in ibid.*, at 89-100.

110. NEEDLESS DEATHS IN THE GULF WAR: CIVILIAN CASUALTIES DURING THE AIR CAMPAIGN AND VIOLATIONS OF THE LAWS OF WAR, Middle East Watch/Human Rights Watch (1991), at 402.

111. *See* for example the report by Lewis, *Effects of War Begin to Fade in Iraq*, New York Times, May 12, 1991, at 2E.

112. Schachter, *United Nations Law in the Gulf Conflict*, 85 A. J. I. L. 466 (1991).

113. On the U.S. attitude to Article 56, and to Additional Protocol I in general, *see supra*, text at nn. 55-61.

114. House of Commons, Defence Committee, Tenth Report, PRELIMINARY LESSONS OF OPERATION GRANBY, London, HMSO, July 1991, at 10-11.

115. STATEMENT ON THE DEFENCE ESTIMATES, 1991, vol. 1, London, HMSO, July 1991, at 17.

116. INTERIM REPORT TO CONGRESS *supra* n. 93 at 12-3; and FINAL REPORT TO CONGRESS *supra* n. 81, at 611.

117. *See e.g.* U.N. G.A. Res. 37/215 of Dec. 20, 1982.

118. Horwitz, report from Kuwait, The Wall Street Journal Europe, (Brussels), Jan. 21, 1992, at 1; also Arkin *et al.*, *On Impact*, *supra* n. 46, at 132-5.

In March 1992, a British company, Royal Ordnance, said it had removed one million mines and 6000 tons of ammunition from different parts of Kuwait; The Independent, (London), Mar. 13, 1992.

119. On the use of depleted uranium shells, *see* the early reports by Cohen in The Independent on Sunday, (London), Nov. 10, 1991, at 1 & 2; these were based on a confidential report by the U.K. Atomic Energy Authority, written in April 1991. *See also* Hoskins, *With its Uranium Shells, Desert Storm May Have Sown Death*, International Herald Tribune, (London), Jan. 22, 1993, at 4; the author was medical coordinator of the Harvard Study Team's surveys of health in post-war Iraq. *See also* the discussion of depleted uranium in *supra* Chap. V, Garrett, *The Army and the Environment: Environmental Considerations During Army Operations*, *supra* Chap. X, at 2; and Arkin, *The Environmental Threat of Military Operations*.

120. Report *in* The Times, (London), Jul. 28, 1995, at 4.

121. INTERIM REPORT TO CONGRESS, *supra* n. 93 at 13-1; Robinson, 'Draft Articles, with Commentary', paper at Ottawa Conference July 1991, at 12; and Kuwait Environment Protection Council, STATE OF THE ENVIRONMENT REPORT, *supra* n. 88 at 31.

122. On the methods of coping with the oil spills in the Gulf, *see* the news report by Aldhous, *Big Test for Bioremediation*, 349 Nature, Feb. 1991, at 447 (this method was rejected by the Saudi authorities); Arkin *et al.*, *On Impact*, at 63-6; Horgan, *The Muddled Cleanup in the Persian Gulf*, 265 Sci. Am. 86-8 (Oct. 1991), and Holloway, *Soiled Shores*, same issue, at 81-94.

123. *See, e.g.*, Bellamy's report from *HMS Sheffield* in the Gulf, *Gulf Wildlife Bounces Back From Disaster*, The Independent, (London), Jan. 22, 1992; and the discussion of 1991 Gulf War oil pollution, including the 1992 Mt. Mitchell oceanographic research expedition which studied the long-term effects of the oil spill, in John Quinn and Ronald DeMarco, *The Impact of War and Military Operations Other than War on the Marine Environment: Responsible Policy Making on the Frontiers of Knowledge*, paper at the Naval War College Symposium (Sept. 1995), Newport, RI, at 10-13.

124. Linden, *Getting Blacker Every Day*, Time, Atl.ed., May 27, 1991, at 68-9.

125. AP report from Kuwait City *in* The Independent, (London), Nov. 7, 1991; Garwin & Kendall, *Quenching the Wild Wells of Kuwait*, 354 Nature, Nov. 1991, at 11-14, .

126. *See e.g.* the advertising section on Kuwait *in* International Herald Tribune, (Paris), Apr. 29, 1992, at 9-10; and Kielmas, *Kuwait Plunders Oilfields to Destruction*, The Independent, (London), May 22, 1992.

127. Horwitz, report from Kuwait, The Wall Street Journal Europe, (Brussels), Jan. 21, 1992.

128. Summaries of follow-up action by UNEP, ROPME and other bodies are in *UNEP Annual Report 1991*, Nairobi, 1992, at 8-9, 53 & 79; and in YEARBOOK OF THE UNITED NATIONS 1992, at 690-1, and YEARBOOK OF THE UNITED NATIONS 1993, at 820.

129. YEARBOOK OF THE UNITED NATIONS 1993, at 820.

130. Hague Convention No. IV, Art. 3, *supra* n. 62, was one legal basis for the demand for compensation from Iraq, including for damage to the environment.

131. By contrast, the Security Council was silent after the war on the subject of Iraq's non-adherence to Additional Protocol I. This was for obvious reasons, including the fact that several Coalition powers were not themselves parties to the Protocol, the U.S. Government being especially critical of it: they would hardly have been in a position to impose it on Iraq, even if they had wished to do so.

132. *See* U.S. Department of State Dispatch, issues published in January-March 1991, for several statements by President Bush and others favoring the overthrow of the Iraqi regime.

133. REPORT ON IRAQI WAR CRIMES (DESERT SHIELD/DESERT STORM) (UNCLASSIFIED VERSION), prepared under the auspices of the U.S. Secretary of the Army, Washington, DC, Jan. 8, 1992, at 13, 15-18 & 46. This report was submitted to the President of the U.N. Security Council on Mar. 19 1993, and was circulated as U.N. Doc. S/25441 of that date. [Hereinafter: U.S. Report on Iraqi War Crimes.] In the 14-month interval the report had evidently been circulated to some foreign governments as one basis for possible trials, or at least the establishment of a commission of inquiry, but no action followed and it was sent to the U.N.

134. Some discussion of a possible new treaty dealing with environmental damage in war took place at the international conference held at King's College, London, on 3 June 1991. *See* Plant, *supra* n. 2.

135. Green, in his paper for the July 1991 Ottawa Conference, *supra* n. 5, at 14, suggested "the General Assembly or even the Security Council charging the International Law Commission, as a matter of urgency, to take up the issue..."

136. International Council of Environmental Law, *Law Concerning the Protection of the Environment in Times of Armed Conflict*, Munich Consultation, Dec. 13-15, 1991, Final Recommendations, at 1-2.

137. The postponement, announced on 26 November 1991, was due to disagreements on the question of Palestinian representation. The International Conference had been intended to address, as one of its two themes, respect for international humanitarian law. Among the ICRC preparatory documents containing references to the effects of war on the environment was one entitled "Implementation of International Humanitarian Law, Protection of the Civilian Population and Persons Hors de Combat" (1991), at 40.

138. Draft Resolution which was to have been item 4.2 on the provisional agenda of the Commission I, document dated Nov. 1, 1991.

139. U.N.G.A. Decision 46/417 (1991), requesting the Secretary-General to report on activities undertaken in the framework of the ICRC regarding protection of the environment in time of armed conflict. *See also* G.A. Res. 46/54 of the same date, which referred to the Draft Code of Crimes against the Peace and Security of Mankind, adopted by the International Law Commission, Art. 26 of which sought to declare criminal "an individual who wilfully causes or orders the causing of widespread, long-term and severe damage to the natural environment." 30 I.L.M. 1584 (1991), and YEARBOOK OF THE UNITED NATIONS 1991, at 823 & 848-9.

140. This paper was published as Protection of the Environment in Times of Armed Conflict: Report of the Secretary-General, U.N. Doc. A/47/328 (1992).

141. G.A. Res. 47/37 (1992), on Protection of the Environment in Times of Armed Conflict, adopted without vote. For a summary of U.N. discussions up to and including that resolution, see Morris, *Protection of the Environment in Wartime: The United Nations General Assembly Considers the Need for a New Convention*, 27 Int'l Law 775-82 (Fall 1993).

142. United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992, Rio Declaration on Environment and Development *supra* n. 12; and in Grubb *et al.*, *The Earth Summit Agreements: A Guide and Assessment*, Earthscan for Royal Inst. of Int'l Aff. (1993), at 89.

143. Protection of the Environment in Time of Armed Conflict, submitted by the U.N. Secretary-General to the 48th session of the General Assembly (U.N. Doc. A/48/269 (1993)). This 27-page document took up the main elements of, and essentially superseded, the ICRC's July 1992 report, *supra* n. 140. The new document included a 4-page appendix of "Guidelines for Military Manuals and Instructions on the Protection of the Environment in Time of Armed Conflict." These guidelines were subsequently revised in the light of comments from governments, and issued as U.N. Doc. A/49/323 (1994). The full text of this revised version appears in an appendix to Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 A.J.I.L. 641-4 (1995).

144. *See* paras 11-14 of G.A. Res. 48/30 of (1993), on "United Nations Decade of International Law," adopted without vote; and para. 11 of G.A. Res. 49/50 of (1994), inviting States to disseminate widely the revised guidelines.

145. Kuwaiti woman interviewed on television program, "Dispatches," made by Jenny Barraclough and shown in the U.K. on Channel 4 on Jan. 8, 1992.

146. INTERIM REPORT TO CONGRESS, *supra* n. 93 at 13-1. The FINAL REPORT TO CONGRESS, *supra* n. 81, is silent on this issue.

147. The Coalition was reportedly prepared to resort to chemical and/or nuclear weapons, and a plan was reportedly made known to the Iraqis to deter a possible Iraqi resort to chemical weapons; Bellamy, *Allies "put Iraqis off chemical war"*, The Independent, (London), Nov. 29, 1991.

148. Bothe, *The Protection of the Environment in Times of Armed Conflict: Legal Rules, Uncertainty, Deficiencies and Possible Developments*, paper presented at ICRC Meeting on Protection of the Environment in Time of Armed Conflict, Geneva, (Apr. 27-29, 1992). *See also* the similar observation by Dieter Fleck (Director of International Affairs, Federal Ministry of Defence, Bonn), *Legal and Policy Perspectives for the Protection of the Environment in Times of Armed Conflict*, paper presented at British Institute of International and Comparative Law, London, Mar. 26, 1992, at 5-6.

149. Matheson, Deputy Legal Adviser, U.S. Department of State, in January 1987, *supra*, text accompanying n. 56. On the harmonization of rules *see also* Hampson's conclusion in *Means and Methods of Warfare in the Conflict in the Gulf*, *supra* n. 108, at 109-10.

150. "The U.S. concern regarding more restrictive environmental provisions is that they could be implemented only at the expense of otherwise lawful military operations—such as attacking targets which require fuel-air explosives (FAE) for their destruction." Terry, *The Environment and the Laws of War: The Impact of Desert Storm*, 65 Nav. War Col. Rev. 62 (Winter 1992).

151. On the ICRC and U.N. developments in 1992-4, *see supra* text accompanying nn. 141-44.

Chapter XV

Comment: The Existing Legal Framework, Protecting the Environment During International Armed Conflict

Professor Paul C. Szasz*

I will now briefly and schematically present my understanding of the existing state of the relevant law, then quickly summarize the developments since the Gulf War — the immediate trigger of most of the current interest in this subject — and finally indicate where, on the basis of the foregoing, the present law appears to be in need of strengthening or other improvement.

First, a schematic summary of the current state of the law—which, incidentally, has not changed significantly since the Gulf War.

A. Norms governing armed conflict:

(1) Those prohibiting wanton destruction, which go back to the 1899 and 1907 Hague Peace Conferences, are embodied in treaties that have been widely accepted[1] and have been held to be solidly part of customary law that binds even those States that are not parties to these agreements. They do not specifically refer to the environment but, when observed, largely do protect it and actually proscribed most of the environmental abuses committed in the course of the Gulf War.[2]

(2) Other, more recent humanitarian treaties,[3] and some others such as the ENMOD Convention,[4] specifically require the protection of the environment. However, many significant States have not yet become parties to these treaties, and their recent vintage and the scarcity of relevant State practice makes it difficult to consider them part of customary international law.[5]

B. Environmental protection norms:

(1) Treaties relating to or containing general provisions for environmental protection, such as the 1982 U.N. Convention on the Law of the Sea,[6] the many International Maritime Organization (IMO) conventions regulating the disposal of oil in the sea,[7] or similar regional conventions such as those relating specifically to the Persian Gulf,[8] which generally do not specify whether and to what extent they are meant to apply to or during military conflicts.[9]

(2) There are some environmental instruments that specifically refer to military operations, such as the following provisions of the 1982 World Charter for Nature:[10]

> 5. Nature shall be secured against degradation caused by warfare or other hostile activities.
>
> ....
>
> 20. Military activities damaging to nature shall be avoided.

and the Rio Declaration on Environment and Development:[11]

> Principle 24
>
> Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing for protection of the environment in times of armed conflict and cooperate in its further development, as necessary.

The General Assembly also stressed, in a post-Gulf War resolution on "Protection of the environment in times of armed conflict", in which it referred to applicable provisions of the 1907 Hague and 1949 Geneva Conventions, the 1977 Additional Protocol I, the ENMOD Convention, and the Rio Declaration, that:

> destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law....[12]

Though these statements, which are merely declarations of leading representative international bodies, basically at best constitute international 'soft law,' their adoption by the votes or with the concurrence of representatives of a large majority of countries lend some weight to the suggestion that they represent, if not yet well-established customary law, at least the shape of *lege ferenda*.[13]

This quick summary suggests that the current shape of the international law protecting the environment during armed conflict is not really in very good shape, with principal reliance still placed on nearly century-old principles of humanitarian law evolved when environmental protection was not yet even a glimmer in the consciousness of the international community.

When legal stocktaking after the Gulf War[14] revealed the somewhat tattered nature of this twig of international law, there was at first a good deal of scurrying around to see what should be done. Greenpeace and others suggested the formulation of a Fifth Geneva Convention on the Protection of the Environment in Time of Armed Conflict, and there were corresponding suggestions for the establishment of an International Green Cross.[15] Fairly soon the matter was taken up by both the International Committee of the Red Cross (ICRC) — presumably concerned to protect its position as the world's primary humanitarian law

organization — and the U.N. General Assembly, which was pleased to defer in this complicated and ticklish field to the ICRC.[16]

The Red Cross thereupon held a number of expert meetings, and after submitting an interim report to the United Nations in 1992[17] superseded the latter by an excellent definitive one the following year.[18] In it, the ICRC in effect rejected the formulation of any comprehensive new international instrument and suggested instead a number of more modest measures, such as: clarifying the relationship between the somewhat similar terminology in the ENMOD Convention and in Article 35(3) of the 1977 Additional Protocol I to the 1949 Geneva Conventions; review of the applicability in armed conflict of international environmental law; restriction on the use of mines; protection of cultural sites and nature reserves and parks; institutional means of implementing provisions on the protection of the environment in times of armed conflict; dissemination of the relevant international legal provisions; and the drafting of Guidelines for military manuals and instruction —for which purpose it attached a detailed text.[19] The General Assembly generally endorsed this approach and in particular the proposed Guidelines.[20]

Having personally been among those who initially considered that it might be best to recodify and expand the existing international law,[21] I must confess that I now concede the force of the arguments against such a project. My principal reason is that stated yesterday by Mr. Conrad Harper, that because of the need to achieve widespread consensus on any new treaty, "the resulting agreement might likely resemble a lowest common denominator, decidedly unhelpful in dealing with hard cases" and that it might "be a model of ambiguity." It would appear that governments are not at present ready to accept significant new obligations in this field, and any attempt to press them to do so might indeed be counter-productive.

In this connection, I would like to recall my experience as the Legal Adviser to the 1979-1980 U.N. Conference on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects, which produced the 1980 Convention of the same name and the three initial Protocols thereto.[22] There I observed to what extent the military members of, or advisers to, national delegations almost uniformly took the most conservative stance, opposing any restrictions that could conceivably in the future inhibit their own countries' actions, even if the proposed restrictions — if observed — would be of great protective value to their own troops, and the grounds for wishing to remain unrestrained were at best speculative. There is no reason to expect that the situation would be different at any conference convened to draft environmental restrictions on warfare.

This having been said, I would now like to list a number of proposals—some, but not all, already mentioned in the 1993 ICRC report—for improving the current state of the relevant law. I will divide these suggestions into those pertaining to

the actual conflict (on which most of our discussions so far appear to have focused), those relating to the pre-conflict and those to the post-conflict phases — while recognizing that, of course, no strict division is possible.

1. With respect to the conflict or combat phase:

(a) Encouragement of universal adherence to existing treaties, in particular, the 1977 Additional Protocol I to the 1949 Geneva Conventions.

(b) Attempts to clarify existing norms, and in particular the terms "wide-spread," "long-lasting/long-term" and "severe," which appear disjunctively in the ENMOD Convention and conjuctively in Additional Protocol I and which are discussed in the *travaux préparatoires* of the respective instruments[23] — from which it appears that no reconciliation of the unfortunately similar terminology of these two instruments is possible.

(c) Clarification of the status of environmental treaties during armed conflict: (i) between the parties to such conflict; and (ii) between such parties and neutrals. In this connection, it is necessary to examine both the question of the persistence of treaty obligations during a state of war between parties thereto,[24] and the perhaps more fundamental question of whether such treaties are meant to apply, fully or partially, during a state of warfare.[25] In this connection, it may be apposite to note that multilateral environmental treaties generally establish *erga omnes* obligations, which two or more parties cannot suspend (except with effect purely between themselves) even by agreement — so why should they be able to do so by engaging in armed conflict with each other.

(d) Effective dissemination of the applicable rules to all whose actions or decisions might violate them, which can probably be best done by means of military manuals such as foreseen in the Guidelines proposed by the ICRC.

(e) The establishment of an international monitoring organ to function during periods of armed conflict, to note, if possible to investigate, and to remind the parties concerned of their obligations in respect of environmental protection; such functions might, but need not necessarily, be assigned to the International Fact-Finding Commission established pursuant to Article 90 of the 1977 Additional Protocol I.[26]

2. With respect to the pre-conflict phase:

(a) Attention should be paid to the U.N. General Assembly's 1980 resolution on the "Historical responsibility of States for the preservation of nature for present and future generations," in which the Assembly, *inter alia*:

> 2. [Drew] the attention of States to the fact that the continuing arms race has pernicious effects on the environment ....

There is little doubt that military exercises, in particular extensive target practice, are destructive of the environment where they take place. Moreover, weapons production facilities, such as nuclear facilities in the United States, may for various reasons not be subject to as strict environmental controls as other industrial enterprises. Much could probably be done to alleviate these situations — though obviously a reduction of war preparations would be most beneficial.

(b) Attention should also be paid to Article 36 of Additional Protocol I, which reads as follows:

> Article 36 — New weapons
>
> In the study, development, acquisition or adoption of new weapons, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or in all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party.

First of all, it should be noted that this obligation thus encompasses the environmentally protective provisions of Articles 35(3), 55 and 56 of the Protocol, but also refers to all other such provisions of conventional or customary law, whatever their source.[27] Second, the methods of determining whether a particular new weapon might be unduly offensive to the environment include the by now well-established practices of environmental impact assessments[28] and the use of the precautionary principle[29] — which evidently can not easily be applied in combat situations but which should be fully applicable in pre-conflict ones.

(c) The setting of targeting rules and the selection of targets or types of targets should, as far as possible, be carried out in advance of a particular armed conflict and, in any event, of a particular combat situation, at a level of leadership — whether military or civilian — where account can appropriately be taken of any relevant environmental considerations. Thus, it should not be left to commanders of ships to decide whether or not, under certain circumstances (*e.g.*, the maintenance of an embargo), tankers may be targeted.

3. With respect to the post-conflict phase:

(a) Some type of international, impartial fact-finding procedure should be established to determine to what extent and how the environment has been harmed during an armed conflict, and all parties to the conflict should be required to co-operate in such an exercise.

(b) Procedures should be established for the determination and assessment of civil liability on States for the infliction, during a conflict, of undue damage to the environment, which damages should be payable to the States damaged or to the international community if the damage extends to a *res communis*. Such liability need not necessarily be restricted to the aggressor State, though such a State might be required to bear the ultimate burden of any environmental harm caused, as the Security Council required of Iraq in the Gulf War.[30] But as between a neutral in a conflict (or the international community) and a participant in a conflict who caused improper environmental harm (*i.e.*, harm inconsistent with a legal obligation of such State), it would seem proper that the latter rather than the former bear the burden — though that is not the current view of the International Law Commission.[31]

(c) Procedures should be established for the determination of criminal liability for individuals and possibly even for States. For the former, the necessary institutions could be based on the examples of the *ad hoc* tribunals that the Security Council has established in respect of former-Yugoslavia[32] and Rwanda,[33] but a more sound foundation would probably be the International Criminal Court now under consideration by the General Assembly.[34]

As to what constitutes environmental crimes, it should first of all be noted that Article 85(5) of the 1977 Additional Protocol I specifies that grave breaches of that instrument or of the 1949 Conventions constitute war crimes; however, it does not identify breaches of its environmental provisions (Articles 35(3) and 55) as grave breaches— although "extensive destruction . . . of property, not justified by military necessity and carried out unlawfully and wantonly" is so classified by Article 147 of Geneva Convention IV and is thus a war crime for parties to the Protocol. In addition, the I.L.C. had included in its first reading of the Draft Code of Crimes against the Peace and Security of Mankind, the "employing of methods and means of warfare which are intended or may be expected to cause wide-spread, long-term and severe damage to the natural environment" as an "exceptionally serious war crime."[35]

Furthermore, under its work on "State Responsibility," the I.L.C. has tentatively classified as a State crime "massive pollution of the atmosphere or of the seas"[36] — though the very notion of the criminal responsibility of States has recently been seriously questioned in the Commission.[37]

(d) Finally, one of the most useful post-conflict environmental measures that could be taken would be to make effective provisions for the removal of the remnants of war, and especially mines, from erstwhile battlefields. In this connection, one might recall a 1982 U.N. General Assembly resolution on "Remnants of War"[38] that stated, *inter alia*:

> *Convinced* that the responsibility for the removal of the remnants of war should be borne by the countries that planted them,
>
> ....
>
> 3. *Reiterates* its support of the just demands of the States affected by the implantation of mines and the presence of the remnants of war on their lands for compensation from the States responsible for those remnants....

Though there has been no direct follow-up of that somewhat isolated declaration, it should be noted that immediately after the Gulf War cease-fire the Security Council demanded that Iraq:

> Provide all information and assistance in identifying Iraqi mines, booby traps and other explosives as well as any chemical and biological weapons and material in Kuwait, in areas of Iraq where forces of Member States cooperating with Kuwait pursuant to Resolution 678 (1990) are present temporarily, and in adjacent waters.....[39]

Such an obligation, of course, is set out in Protocol II (which deals with land mines) of the Inhumane Conventional Weapons Convention.[40]

Of greater general and long-term significance is the conference that the United Nations organized this July on the Removal of Land Mines, recognizing that this may be the most important post-war environmental restoration that can be taken. On the other hand, the first Review Conference of the Inhumane Weapons Convention, which is *inter alia* scheduled to consider an extension of Protocol II to that instrument, is unlikely to make much progress over the existing provisions — for the majority of poorer countries consider simple contact mines to be a weapon of choice for those that cannot afford more complex and expensive defensive devices, such as the self-destructing mines that would meet the requirements of the existing Protocol.

Arguably, the present Symposium has—true to a narrow construction of its title—so far focused too extensively on the protection of the environment during actual combat, *i.e.*, in situations where these concerns can least readily be accommodated, and thus arouse the greatest anxiety of the military. By contrast, the measures that can be taken before a particular conflict arises, and in any event before an actual combat operation has begun, and especially those that can be taken after the end of the conflict, appear to have been somewhat neglected even though they may well be less controversial and more effective.

Notes

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1. *See*, in particular, the "Martens Clause" set out in the Preamble to the 1907 Hague Convention IV Respecting the Laws and Customs of War on Land, 36 Stat. 2227; T.S. 539; Bevans 631, Articles 22, 23(g) and 55 of the Hague Regulations attached thereto, as well as Article 53 of 1949 Geneva Convention IV on Protection of Civilian Persons in Time of War, 6 U.S.T. 3516; T.I.A.S. 3365; 75 U.N.T.S. 287.

2. It is evidently these rules that are referred to in para. 3 of the "Chairman's Conclusions" of the July 1991 Ottawa Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare [hereinafter the Ottawa Conference Conclusions], which declares that: "There was a shared view that important provisions of customary and conventional law had been seriously violated."

3. In particular, 1977 Additional Protocol I to the 1949 Geneva Conventions, 1125 U.N.T.S. 3, *reprinted in* 16 I.L.M. 1391 (1977), Articles 35(3) and 55 of which are directly relevant.

4. Convention on the Prohibition of Military or Any Other Hostile Uses of Environmental Modification Techniques, 18 May 1977, 1108 U.N.T.S. 151; 31 U.S.T. 333; T.I.A.S. 9614; 16 I.L.M. 88 (1977).

5. It is therefore less clear on what evidence the Chairman of the Ottawa Conference (*see supra* n. 2) based his conclusions in paragraphs 5 and 9, respectively that: "There was a shared view that wanton destruction of the environment with no legitimate military objective is clearly contrary to existing international law" and "The customary laws of war, in reflecting the dictates of public conscience, now include a requirement to avoid unnecessary damage to the environment." *See also* the texts preceding n. 13 *infra*.

6. 21 I.L.M. 1261 (1982), in particular Part XII (Articles 192-237), Protection and Preservation of the Marine Environment.

7. In particular: the International Convention for the Prevention of the Pollution of the Sea by Oil, 12 May 1954, 327 U.N.T.S. 3; 12 U.S.T. 2989; T.I.A.S. 4900; Brussels International Convention on Civil Liability for Oil Pollution Damage, 29 November 1969, 973 U.N.T.S. 3, 9 I.L.M. 45 (1970); London Convention on Civil Liability for Oil Pollution Damage from Offshore Operations, 1 May 1977, 16 I.L.M. 1450 (1977).

8. Kuwait Protocol [to the Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, 24 April 1978] concerning Regional Co-operation in Combatting Pollution by Oil and Other Harmful Substances in Cases of Emergency, 24 April 1978, 17 I.L.M. 526 (1978).

9. Article 236 of the 1982 U.N. Convention on the Law of the Sea (*supra* n. 6), misleadingly titled "Sovereign immunity," makes Chapter XII of the Convention inapplicable to any naval or other governmental ships, which suggests that at least these provisions do not apply in armed conflict

10. U.N. General Assembly Res. 37/7 of 28 Oct. 1982, 22 I.L.M. 455 (1982), adopted by a vote of 111: 1 (United States): 18.

11. U.N. Doc. A/CONF.151/26 (Vol. I), part I.1.I; 31 I.L.M. 876 (1992).

12. U.N. General Assembly Res. 47/37 of 25 Nov. 1992, 5th preambular paragraph, U.N. Doc. A/RES/47/37 (1993).

13. It is presumably on declarations of this type that the Ottawa Conference Conclusions referred to in n. 5 *supra* were based—though it should be noted that the latter two were subsequent to both the Gulf War and the Ottawa Conference.

14. Aside from the July 1991 Ottawa Conference of Experts referred to in n. 2 *supra*, the International Council of Environmental Law held consultations in December 1991 in Munich that issued a Final Report; these and other meetings, some that merely surveyed the terrain and others that considered specific further action, are listed in the ICRC report cited in n. 20 *infra*, endnote 4, p. 22. In addition, there were two reports to the U.S. Congress, respectively by the Senate Committee on Environment and Public Works, Gulf Pollution Task Force, on "The Environmental Aftermath of the Gulf War", March 4 and 5, 1992, the Executive Summary and Recommendations of which contains a section on "International Legal Issues", and by the Department of Defense on the Conduct of the Persian Gulf War, Appendix O of which addressed "The Role of the Law of War" and includes a brief section on "Environmental Terrorism" (31 I.L.M. 612, at 636-37 (1992)).

15. *See*, The Globe and Mail, 6 and 11 March 1991, respectively reporting on and presenting the proposals of Patrick Boyer, a Canadian Member of Parliament.

16. *See*, U.N. General Assembly Decision 46/417 of 9 December 1991, on the agenda item: "Exploitation of the environment as a weapon in times of armed conflict and the taking of practical measures to prevent such exploitation".

17. U.N. Doc. A/47/328, 31 July 1992.

18. U.N. Doc. A/48/269, 29 July 1993, part II.

19. *Id.*, section II.G (paras. 109-13) and Annex. It might be noted that these conclusions, including the one concerning military manuals, were foreshadowed by the Ottawa Conference Conclusions two years earlier.

20. U.N. General Assembly Res. 48/30 of 9 December 1993, paras. 11-14; *see also* Resolution 49/50 of 9 December 1994, paras. 11-12.

21. *See* Szasz, *Environmental Destruction as a Method of Warfare: International Law Applicable to the Gulf War*, 15:2 Disarmament 128 (1992), "Some Proposals" at 151, as well as the other earlier studies referred to in n. 6 to that article.

22. 1342 U.N.T.S. 7; 19 I.L.M. 1529 (1980).

23. Understandings concerning the terms used in ENMOD were recorded by the U.N.'s Conference of the Committee on Disarmament, A/31/27, Annex I, reproduced in the article in Disarmament (*supra* n. 24), in endnote 11 at 155-56. With respect to Additional Protocol I, the terms in question and their comparison with those in ENMOD are discussed in the Rapporteur's Report, O.R. XV, p. 268, CDDH/215/Rev.1, para. 27, reproduced with extensive

comments *in* COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949 (Sandoz, Swinarski, & Zimmermann eds. 1987) paras. 1454-58, at 416-19.

24. This question is so difficult that it was explicitly evaded by Article 73 of the 1969 Vienna Convention on the Law of Treaties (1155 U.N.T.S. 331); however, it is interesting to note that Article 75 suggests that there may be special obligations in respect of a treaty for an "aggressor State."

25. It should be noted that the International Council of Environmental Law, in its 1991 Final Report (*see supra* n. 14) "6. ... drew attention to the fact that the rules of international environmental law continue to apply between parties to an armed conflict and third parties [and] recommended clarification of the extent to which these rules also continue to apply between parties to an armed conflict."

26. The Commission was established only a few years ago, when 20 parties to the Protocol had made the declaration required by Article 90(2); it has not as yet had any business. It should be noted that it is likely that the Commission will consist mostly of experts in conventional humanitarian law, and that in any event its competence is limited, in respect of environmental protection *strictu sensu*, to the relevant provisions of Additional Protocol I.

27. *See* ICRC report, *supra* n. 18, para. 36.

28. *See* Principle 17 of the Rio Declaration, *supra* n.11. More importantly, the requirement to make environmental impact assessments (originally a U.S. domestic innovation) has been enshrined in numerous international instruments, including treaties (*see, e.g.*, those listed in Weiss, Szasz & Magraw, INTERNATIONAL ENVIRONMENTAL LAW: BASIC INSTRUMENTS AND REFERENCES (1992) at 120-21).

29. Rio Principle 15 (*id.*) and the instruments set out in INTERNATIONAL ENVIRONMENTAL LAW (*id.*) at 121.

30. Security Council Res. 687 (1991) of 3 March 1991, para. 16. *See also* Article 75 of the Vienna Convention on the Law of Treaties *supra* n. 24.

31. Under the heading "International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law" the I.L.C. Rapporteur has suggested the adoption of the following draft Articles:

Article 24

Harm to the environment and resulting harm to persons or property

If the transboundary harm proves detrimental to the environment of the affected State:

(a) The State of origin shall bear the costs of any reasonable operation to restore, as far as possible, the conditions that existed prior to the occurrence of the harm. If it is impossible to restore these conditions in full, agreement may be reached on compensation, monetary or otherwise, by the State of origin for the deterioration suffered....

Article 26

Exceptions

1. There shall be no liability on the part of the State of origin or the operator, as the case may be:

(a) If the harm was directly due to an act of war, hostilities, civil war, insurrection ...

(Report of the I.L.C. on its 42nd session, 45 GAOR Suppl. No. 10 (A/45/10), ch. VII, paras. 515-16, at 274-77. In his report to the 43rd (1991) session of the Commission, the Rapporteur proposed some restructuring of the provisions quoted below, but without any substantive changes (A/CN.4/437, paras. 59 and 61).)
However, under the heading of "State Responsibility", the Commission is considering the inclusion—apparently without a military exception—of:

...a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas.

(Report of the I.L.C. on its 28th session, 31 GAOR Suppl. No. 10 (A/31/10), ch. III.B.1, para. 78, at 175, *reproduced in* 1976:II I.L.C.Y.B. 95-96).

32. U.N. Security Council Res. 827 (1993) of 25 May 1993.

33. U.N. Security Council Res. 955 (1994) of 11 Aug. 1994.

34. U.N. General Assembly Res. 49/53 of 9 Dec. 1994. For the latest text of the Draft Statute of such a tribunal, see the I.L.C. report set out in U.N. Document A/49/10.

35. Report of the I.L.C. on its 43rd session, 46 GAOR Suppl. No. 10 (A/46/10), Ch. IV.D.1, *reproduced in* 30 I.L.M. 1584 (1991), draft Articles 22(2)(d) and 26. It should be noted that the latter Article has aroused sufficient opposition

among governments that the I.L.C. Rapporteur in his latest report (A/CN.4/466 and /Corr.1) suggested the deletion of this provision—a matter that the Commission considered at its 47th session and which it then referred to a special working group. *See* 50 GAOR Suppl. No. 10 (A/50/10), ch. II, paras. 38, 119-21, 140-41.

36. Report of the I.L.C. on its 28th session, 31 GAOR Suppl. No. 10 (A/31/10), Ch. III.B.1, para. 78, at 175, *reproduced in* 1976:II I.L.C.Y.B. 95-96.

37. *See* 50 GAOR Suppl. No. 10 (A/50/10), ch. IV.B.3, paras. 323-36.

38. U.N. General Assembly Res. 37/215 of 20 December 1982.

39. U.N. Security Council Res. 686 of 2 March 1991.

40. *See supra* n. 22..

Chapter XVI

Panel Discussion: The Existing Legal Framework, Part I

Professor Myron Nordquist, Stockton Professor of International Law, Naval War College: When Professor Grunawalt asked me to serve as a moderator for this Panel, he made it clear that I was to moderate and not to speak. So, I will be quite business-like and briefly introduce the Panel's three speakers. We have all agreed to strict time limits on the theory that we will have questions and comments from the floor and that we will all gain something from the interchange. I am Myron Nordquist, the current holder of the Stockton Chair here at the Naval War College. I am on loan from the faculty of the United States Air Force Academy.

The first speaker on our Panel is Professor George Walker, Professor of International Law at Wake Forest University. George, as many of you are aware, is a prior holder of the Stockton Chair. Our second speaker is Professor Adam Roberts, Professor of International Relations at Oxford University. Adam has a great deal of experience in this area, and I am confident that his remarks will stimulate comments from the floor.

The commentator for our Panel also has had a very distinguished career. Professor Paul Szasz was, until 1989, the Principal Legal Officer at the United Nations and is currently with the Center for International Studies at New York University School of Law. Among the many things that Paul has done that are not mentioned in his biograph in front of you is that he served as Legal Counsel to the International Conference on the Former-Yugoslavia. With that, may I please turn the rostrum over to Professor George Walker.

Professor George K. Walker, Wake Forest University: Thank you Myron. My topic this morning is "The Oceans Law, the Maritime Environment and the Law of Naval Warfare." As do many government speakers who come to private institutions such as mine, I have a few disclaimers. First of all, the September 6th draft of my paper is just that, a draft. I welcome comments before final publication. Secondly, my remarks are limited to the topic of the paper; the law of the sea, the oceans environment and how these sometimes overlapping bodies of law relate to the law of armed conflict at sea, *i.e.*, the law of naval warfare. Third, I might add that I was a member of the group of academics and sea service officers, who appeared in private capacity, that produced the San Remo Manual on the Law of Naval Warfare. I am not here to endorse the Manual; I own no stock, and will receive no royalties, but I wanted to make that disclaimer. Finally, I am not about

to cover even a small part of the substance of what I have written but that fact leads me to the principal points I make today.

There is an enormous volume of law related to the maritime environment, most of it in treaties appearing since the 1958 Law of the Sea Conventions. However, if we include the 1907 Hague Conventions dealing with bombardment and the like, and their successors such as the 1925 Geneva Gas Protocol, the 1935 Roerich Pact, the 1949 Geneva Conventions, and so forth, there is an older and deeper legacy of environmental protection, at least as it pertains to general human health and cultural and historical objects as specific aspects of environmental quality during warfare.

The 1982 Law of the Sea Convention is the first treaty to deal comprehensively with maritime environmental problems. For those countries that are or become parties, the Convention will be an effective, if "mild" trumping device, much as the U.N. Charter, Article 103, declares that Charter norms supersede all other treaties, including those treaties related to environmental protection, whether already in force or to come into force, which may have special terms but which "should be carried out in a manner consistent with the general principles and objectives of this Convention." That is from Article 237. In other words, what we have in the 1982 Covention is a constitution or a charter for the marine environment. The upshot of it is that all agreements in place, or to be negotiated, must conform generally to the Convention's generally stated norms.

The Convention does several things with respect to the environment. First, Part XII deals generally with protection and preservation of the marine environment. Other aspects of environmental protection are found throughout the Convention. If, for example, you look through some of the navigational articles, which have already been acknowledged to represent customary law, they too have statements related to environmental protection, conservation, and the like. The third point about the Convention is that it solidly endorses the absolute sovereign immunity of "any warship, naval auxiliary, other vessels or aircraft owned or operated by a State and used, for the time being, only on government non-commercial service." That is language from Article 236, which is found in Part XII, the environmental provisions of the Convention, but similar language appears in other places. However, many of these provisions also declare that flag States bear responsibility for damage, that is, even though the warship itself is immune, flag States bear responsibility for any damage they may cause in contravention of Convention norms. Article 236 declares that States must adopt measures, not impairing operations or operational capabilities, to ensure that such vessels or aircraft operate consistently, so far as it is reasonable or practical to do so, with the Convention. The importance of that, especially in the non-war context, is that if we assume, as I do, that the 1982 Convention is more or less the overarching control or standard, and that all treaties in place, or to be put in place,

have to conform to it in substance, those treaties in place that do not have a sovereign immunity clause, for example, now must have soverign immunity read into them. I think that is fairly important for the confrontation situations that may confront the Navies of the world in the future.

Another point about the Law of the Sea Conventions is that there are clauses in the 1958 and in the 1982 Conventions that are often overlooked. These are declarations that the treaties are subject to "other rules of international law," as well as the terms of the Conventions themselves. For example, Article 87 of the 1982 Convention, dealing with high seas freedoms, says in part that the freedom of the high seas is exercised "under the conditions laid down by this Convention and by other rules of international law." I draw three conclusions from this.

First, the overwhelming majority of commentators, including the International Law Commission, have stated that "other rules of international law" refer to the law of armed conflict. Therefore, provisions such as Article 88 of the 1982 Convention state a truism, that the high seas are reserved for peaceful purposes. However, high seas usage can be subject to the law of naval warfare when Article 87 is read into it. Moreover, in no case can either provision "trump" United Nations Charter norms, and here again we come back to Article 103 of the Charter, and to fundamental Charter principles which include the inherent right of individual and collective self-defense in Article 51.

Second, there is no indication, at least in my research, that the drafters of the law of the sea conventions, certainly not in 1958, and likely not in 1982, thought that the "other rules" clauses referred to anything else, and particularly not to any customary law of the environment. To be sure, under traditional analysis, you have to consider parallel custom or general principles in analyzing sources that bear on a particular problem, but there is nothing to indicate that there was any intention to incorporate general customary law or general principles through the "other rules" clauses.

Third, there are other agreements in being which also include clauses exempting, or partially exempting, their application during armed conflict; the older ones speaking of "war," others of "armed conflict," and still others of "emergency situations," and that includes the NAFTA package of about a year ago. This tends to confirm the view of applying the law of armed conflict as a separate body of law in appropriate situations. To the extent that treaties dealing with the maritime environment do not have such clauses, and there are a few, they must be read in the light of the law of the sea conventions that include them; recalling that the 1958 High Seas Convention recites general customary norms to nonparties to any treaty, and that Convention has an "other rules" clause.

Moreover, I would submit that the traditional principles of the law of treaties, such as impossibility of performance, fundamental change of circumstances, or

armed conflict, may suspend operation of some agreements for the duration of the conflict or other emergency situation.

Let me turn now to problems of environmental standards during conflict. Most recently, the San Remo Manual, to be published later this year, endorsed Professor Robertson's view, set out in one of the "Newport Papers," published by the Naval War College, that the relationship of States not parties to a conflict and belligerents can be stated in terms of "due regard," this phrase being taken from the 1982 Law of the Sea Convention, Article 87, which states that high seas users have to exercise "due regard" for ocean users rights. The idea of "due regard," or words to that effect, was used in the 1958 and 1982 Law of the Sea Conventions to describe those relationships. Since the 1958 High Seas Convention reflects customary law, then presumably the idea of "due regard," at least in the law of the sea context, may be read as customary international law.

The San Remo Manual on the Law of Naval Warfare, also applies a "due regard" standard for protecting the environment; belligerents must exercise "due regard" for the environment along with customary principles of military objective, proportionality, and the rest of it. In general, I agree with both positions of the Manual; that is, using a "due regard" formula for interfaces between the law of the sea and the law of naval warfare, and between the law of naval warfare and environmental concerns.

I have a couple of caveats, however. First, any general "due regard" standard should be subject to any specific customary, treaty or general principles norm. The Manual recognizes these in certain contexts, such as in customary general principles of proportionality, and in the ENMOD prohibition on military or other hostile use of environmental techniques having widespread, long-lasting or severe effects. However, since the Manual drafters chose to stop at the water's edge, there is little in the Manual, beyond general standards of proportionality, that would apply to shore bombardment or air attacks from the sea that would call into play treaty and customary rules regarding monuments, and so forth.

Second, there is no indication in the Manual as to the content of either "due regard" standard, or whether the two are considered together as part of a general "due regard" standard. Do you first take "due regard," for example, for rights pertaining to the Exclusive Economic Zone and then consider "due regard" with respect to the environment within that zone? Or, do you take it the other way around?

In my paper I have tried to resolve these issues as follows. First, general norms, perhaps stated in the U.N. Charter or treaties related to the law of naval warfare, such as the Hague Convention related to shore bombardment, would "trump" any general "due regard" principle. For example, if we consider that the Geneva Gas Protocol is an environmental norm, because it kills horses and cattle as well as people, then under

those circumstances that Protocol would "trump" anything else. Then, of course, the U.N. Charter pursuant to Article 103, would "trump" all.

Secondly, I would argue that because some environmental principles are stated in treaties or custom whose parameters may overlap, but not coincide with the 1982 Law of the Sea Convention's geographic coverage, for example those protecting coastal forests, and mangrove swamps do not stop at the water's edge, the degree of conflict between maritime environmental protection treaties and the 1982 Convention has not yet been sorted out. Indeed, the 1982 Convention is not now treaty law for many countries, including the United States.

Third, because there are environmental concerns stated in the navigational provisions of the 1982 Convention, for which the San Remo Manual apparently would state a separate "due regard" requirement, and because of the sheer volume of these agreements, some of them bilateral and others regional, that there should be one, general "due regard" requirement, throwing both law of the sea "due regard" concerns, such as those for the exclusive economic zone and those for environmental concerns, into a common analysis. In terms of anticipated military operations, this can be done as part of the military planning process with which we are familiar, even as rules of engagement can be customized for particular operations or scenarios. Now what I am talking about today is not so much the guy on the bridge of the destroyer, but the planner before the operation begins, when the operation order is being drafted.

I would like to speak briefly of the specifics of the law of due regard. The National Environmental Policy Act (NEPA), with which many of us are familiar, has a factoral approach. I suggest that planners should follow the analogy of the Restatement (Second) of Conflict of Laws of the United States, which follows the Anglo-American common law rule of applying U.S. constitutional principles, and then a statute before any judge-made common law principles are pronounced, followed by a factorial rule of reasonableness, whose analogies are in the Restatement (Second), Section 6 and Restatement (Third), Foreign Relations Law of the United States, Section 403's elaboration which might in a way be due regard as a synonym.

My model would be: first, applicaton of any relevant norms in the United Nations Charter anologous to application of Constitutional principles; second, any norms stated in *jus cogens* principles, however you want to define that term; third, any rules found in treaties, custom and general principles under traditional multisource analysis; and only then, any applicaton of "due regard" or reasonableness as part of the proportionality test for which a tentative list is found in my paper. The list is very tentative and I sincerely invite your comments on it.

Although this formulation might seem to push "due regard" out of the picture, except for Charter norms, which must be observed in any case, and there may be a few *jus cogens* principles out there, there are very few traditional rules within the

various treaties impacting environmental concerns in the law of naval warfare. The result is that "due regard" or "reasonableness" factors will likely come to the fore more often than not through proportionality analysis.

I will now turn to problem areas of the future. First, the proliferation of players. Instead of just worrying about what the Security Council and the General Assembly have said, we are going to be dealing with a veritable flood of new players, including new governments and private sector organizations.

The second problem beginning to emerge is the notion that the right to a clean environment is a human rights issue. I have addressed several aspects of this problem in my paper. One is the so-called "derogation clause" which is found in some human rights conventions but not all. Another involves the application of the law of treaties, such as impossibility of performance, fundamental change of circumstances, and law of armed conflict suspension rules for treaties, and the attempted utilization of human rights theories to enforce environmental laws.

The third problem area addressed in my paper involves the carryover of land warfare concepts, particularly those in Additional Protocol I, into an analysis of environmental protection in naval warfare. I think there is a possibility of that trend continuing.

The last point I would like to make concerns the utility of a new humanitarian law treaty for protection of the environment. In my paper I argue that now is not the time to do that and I reach that conclusion for some of the reasons that have already been stated by prior speakers at this symposium.

One final comment. Jack provided us with the text of Paragraph 8.1.3, "Environmental Considerations," from the newly revised *Commander's Handbook on the Law of Naval Operations*. In general, I would agree with that treatment. The one dissent I would have is my reference to what I call the black letter law. That is, before you get into the due regard analysis set out in Paragraph 8.1.3, I think I would follow the model of Restatement Second, Conflict of Laws, Section 6, that if you have any black letter norms that apply directly to an issue, such as the 1925 Geneva Gas Protocol, you never get into the due regard analysis.

The foregoing summarizes my lengthy paper and extensive footnotes. My remarks, and indeed those of others at this Symposium, demonstrate that the environmental protection factor is a real issue for planners today and will continue to be so for the foreseeable future. While there are few clear navigational beacons to show the way in terms of applicable law during armed conflict at sea, there is a real opportunity to develop norms that will, at the same time, assure maximum permissible use of the Earth's oceans, while protecting the maritime environment, and assure each country's security through lawful use of force on the seas. Thank you.

Professor Nordquist: Thank you George. Our next speaker is Professor Adam Roberts.

Professor Adam Roberts, Oxford University: Rather than summarize my paper, which deals with numerous aspects of environmental damage in war—with particular reference to the 1990-1991 Gulf Conflict—I will take up a few specific issues related to the subject of the paper that have come up here in discussions.

Rear Admiral Wright clearly felt that there was some risk that environmental considerations would undermine deterrence postures. On this critically important issue, two key points should be stressed.

First, although it is sometimes discussed as if it was a new issue, protection of the environment is a classic "law of war" issue. Environmental damage resulting from war can affect innocent civilians. It can affect third countries; and, it concerns damage that may endure long after a conflict. All these characteristics mean that environmental damage is completely within the area of classic laws of war restraints.

Second, environmental damage in war is often caused by an aggressor who wants to hang on to his ill-gotten gains or to destory them rather than return them. Hence the scorched earth policy pursued by the Nazis in many areas towards the end of World War II, especially in northern Norway; and the Iraqi destruction of the oil wells in Kuwait at the very end of the land campaign in 1991. Limiting and controlling such environmental destruction, by developing legal restraints on it, may indeed serve the cause of weakening the position of aggressors. Environmental concerns may thus be compatible with at least some deterrent purposes.

I do not want to imply that it is only aggressors that engage in environmental destruction. Yesterday someone said that he could think of no precedent for what happened in the Gulf in 1991. There is a precedent, mentioned briefly in my paper, which involved a British Colonel who in Romania in the winter of 1916-17, ran riot with a box of matches. He drove a car around destroying any oil wells he could find, as well as corn fields. He was at the same time, a British member of Parliament. The reason he did it was that Romania was about to be occupied by the Central Powers. For his services, he was awarded the Commander of the Grand Star of Romania Medal.

Irrespective of the critical importance of environmental issues in war, I agree strongly with Chris Greenwood that neither the act of destruction of oil facilities, nor every act involving environmental damage, necessarily constitutes a violation of the laws of war. The existing law leaves space for a degree of latitude in the pursuit of legitimate military purposes. While new rules in the two 1977 agreements (Additional Protocol I and ENMOD) may have some value in respect of certain particular cases of environmental destruction, or possibly certain

particular cases of use of the environment as a weapon, for the most part the issue of environmental destruction is addressed in long-standing and much simpler rules, partuclarly 1907 Hague Convention IV and the 1949 Geneva Conventions. These include, particularly, a rule mentioned yesterday by many people: Article 147 of the 1949 Geneva Convention IV declares that extensive destruction of property not justified by military necessity is a grave breach. The word "environment" does not appear in the other rules, but that is not necessary for them to have relevance to the environment.

Many individuals and institutions have understated the value of these older provision. At the time of the 1991 Gulf War, for example, in dealing with the matter of environmental destruction many people, including the International Committee of the Red Cross, got the balance wrong by putting slightly too much emphasis on 1977 Additional Protocol I, which, of course, was not technically in force.

Since the 1991 Gulf Conflict, the ICRC has had three meetings of experts to discuss the protection of the environment in time of armed conflict. This work has led to a number of resolutions by the U.N. General Assembly, to which I refer in my paper. The approach taken by the ICRC has been a very good one, stressing the illegality of many acts of environmental destruction under long-established rules of international law, as well as the importance of ratification of more recent conventions.

I now want to look at the actual events of the 1991 Gulf War, highlighting the issue of the failure of deterrence. There was a tendency among many before the war to exaggerate the nature of the environmental threat. Such exaggerations reflected the perennial fascination of man with apocalyptic threats such as environmental catastrophe. However, it is not necessary to warn of a global environmental catastrophe in order to justify opposition to acts of environmental destruction and despoliation. Crying of "wolf" did considerable damage. It meant that, in many minds, concern with the environment was associated with opposition to the war and to the attempt to reverse the Iraqi occupation of Kuwait.

Some of the deterrent threats made before the war by the Coalition powers were concerned with dissuading Iraq from engaging in acts of environmental destruction. The clearest example was the famous Bush letter that was not accepted in Geneva on 9 January 1991. There was a Security Council Resolution on 29 October 1990 threatening legal action in respect to Iraqi violations of Geneva Convention IV.

The Bush letter warned Iraq not to commit acts of destruction of the oil wells, yet Iraq was not deterred. Why not? Iraq was successfully deterred from engaging in other unlawful actions, in particular use of chemical weapons. One might say that part of the explanation is that the Coalition powers in the end put much less emphasis on preventing environmental destruction than they put on other forms of deterrence, including against the use of nuclear, bacteriological and chemical weapons.

I may be wrong, but I am told that not a single one of the many millions of leaflets that were dropped on Iraqi positions during the war tried to prevent acts of environmental despoliation, such as the destruction of the oil wells. One can point to other failures to press this issue hard enough. Perhaps this was because it did not involve the saving of lives of Coalition troops.

For the Coalition leaders, the prime issue was deterring Iraq from using chemical weapons. They probably felt that they could not make equal threats in respect to acts of environmental destruction. They could only use the ultimate threat in respect of one class of action. The result was that environmental destruction fell through the cracks of deterrence.

Now I will discuss a few post-war implementation questions. After the 1991 Gulf War there were no trials of the major figures responsible. The international community instead chose to follow the path of reparations which, in many respects, is unsatisfactory: it does not effectively punish those directly responsible for the acts of environmental despoliation.

The United States reported a whole range of Iraqi war crimes, including acts of environmental despoliation, to the United Nations in March 1993 in a little noted document which I happened to pick up quite by chance in the U.N. Building. However, we have not seen a satisfactory implementation of international standards. This underlines the more general point that implementation of the law of war is proving to be an extraordinarily difficult issue in the contemporary world.

In conclusion, I would just make two general observations about implementation of the laws of war in the contemporary world, both of which I think are controversial, especially to lawyers.

The first is that it is the case that there is much more of a link between the laws of war, *jus in bello*, and the law about resort to war, *jus ad bellum*, then is generally admitted. Often one State's illegal behavior in war leads to a decision by other powers to engage in hostilities as the only way of effectively stopping the offending State's behavior.

Second, the 1991 Gulf War illustrates the possiblity, not extensively discussed in the literature, that the laws of war can be seen as a set of professional military standards to be applied, even if necessary unilaterally, by one side in a war. This is especially the case in coalition actions. We had reinforcement of that approach in the discussion yesterday of Operation Sharp Guard in the Adriatic. In coalition actions, there may be a special value in observing the laws of war because it is a means of maintaining support for the coalition, both within the countries involved and between them.

Professor Nordquist: Thank you Adam. I will now turn the rostrum over to our commentator, Professor Paul Szasz—Paul?

Professor Paul C. Szasz, New York University: Thank you very much Myron.

The principal speakers have given excellent presentations of the subject of our panel: "The existing Legal Framework on Protecting The Environment During International Armed Conflict." I agree with their principal conclusions, on which I will elaborate a bit later. However, I do have one or two little nits to pick with both of them.

Professor Walker referred once or twice to the "trumping effect" of the U.N. Charter provisions over other potential environmental principles, referring to Article 103 of the Charter, which states that that treaty supersedes all other treaties, earlier or subsequent.

He refers, in particular, to Article 51 of the Charter and the self-defense provisions therein. But when one looks at Article 51, it does not create the right of self-defense. Article 51 states that nothing in the Charter shall derogate from the existing underlying right of self-defense. But it clearly does not create a right to self-defense. Therefore, it cannot be said that the Charter says that self-defense justifies anything that could not be justified otherwise. Moreover, even if that were so, I do not believe that the Charter authorizes the use of force so as to violate humanitarian considerations, anymore than Article 42 authorizes the Security Council to override humanitarian treaties. I do not think that the Security Council could order the destruction of civilians as an Article 42 action. So I consider this "trumping effect" as not really relevant or significant.

The other point I would challenge is that any distinction between the rules of naval warfare and the rules of land warfare could make a difference regarding the protection of the environment. I think that the justification for any distinctions has largely disappeared. When a U.S. naval vessel can send missiles 250 miles inland to hit targets near Banja Luka, one cannot say that different rules should apply to what may be done to a particular target, if the missiles had been fired by an airplane, or from ground artillery from 10 or 20 miles away over the Croatian border.

The rules for protecting the environment must depend on the location of the environmental damage. If the potential target is an oil tanker, it should be just as illegal to hit it from a shore battery as it is to hit it from a naval battery or an airplane. Therefore, I think that these distinctions, to the extent that they exist—and I will not argue about this because it is not a field in which I am expert—will have to be eliminated. The applicable rule should always depend on the target, and not on whether the attack comes from a naval, air or land force.

Coming now to Professor Roberts' presentation, I also have some quibbles. One is the example he gave about the British officer in Romania torching oil wells. Two things should be said. First of all, the circumstances were that Romania was about to be taken over by the enemy and the Romanians later rewarding him for that action. This is an example of self-scorching of territory, the scorched earth policy,

mentioned yesterday, used by the Russians to scorch their own earth as they were retreating. This is not the same as scorching someone else's territory. Moreover, burning the wells was not recognized as an environmental threat then and, indeed, it was not. At that time, the CO_2 overload of the atmosphere was not nearly as dangerous as it is now.

Moreover, of course, the British officer, Colonel Griffiths, did not consider environmental matters. The Iraqis did. They made the threat that what they were about to do might cause a global winter. They knew they were doing something destructive to the envrionment. In fact, they thought their actions would be far more destructive to the environment than they actually were. So I think the Romanian example is not really appropriate here.

As to mere reliance on the Hague Rules, I think we can show some examples where they are insufficient to protect the environment. For instance, releasing a great deal of ozone destroying chemicals into the atmosphere will not be destroying any one's property because it cannot be said that the ozone layer is somebody's property. Furthermore, the value of the property destroyed may be quite disproportionately slight compared to the environmental damage caused. Thus, if the environmental damage caused is far greater than the value of the property destroyed, there might not be much of a case under the Hague Convention, making it necessary to find some other basis for protecting the environment.

Now I would like to briefly summarize my understanding of the state of the existing law to protect the environment during warfare. First of all, there are rules governing armed conflict, the so called humanitarian rules. Some generally prohibit wanton destruction. These go back to 1899, 1907 and perhaps even earlier. They are embodied in treaties that have almost universal participation and, in any event, are generally considered to have become solid parts of customary international law binding even nonparties to these treaties. The Hague Conventions do not specifically refer to the environment, but they do, incidentally, protect the environment if they are observed.

On the other hand, there are other humanitarian law instruments that are more recent. These include the ENMOD Convention and Additional Protocol I to the Geneva Conventions. Each contain specific environmental provisions, but have not received all that many ratifications. Because of the paucity of ratifications, they cannot be said to have become part of customary law. Consequently, they do not bind any countries, except those parties to the treaty. As we know, in the 1991 Gulf War, Iraq was not a party to many of the relevant treaties, while the United States was not a party to Additional Protocol I. Therefore, it was difficult to rely on the environmental principles set forth in those treaties.

Secondly, there are the treaties and norms relating generally to environmental protection, such as those expressed in the 1982 Law of the Sea Convention and the oil dumping and oil pollution conventions that originate with the IMO, as well as

the UNEP-sponsored 1978 Kuwait Oil Pollution Protocol to the Regional Maritime Environment Convention that covers the Persian Gulf. As to these, the problem is that they do not indicate whether or not, and to what extent, they are meant to apply during an international armed conflict.

Finally, there are among the environmental instruments, some that specifically address the environment in time of war, such as the 1982 World Charter of Nature and the 1992 UNCED Declaration. Unfortunately, these are simply declarations of high-level international plenary bodies, and thus really constitute only the softest of soft law. At most, they may indicate what the future law might be. As to solid law, we must simply go back to the Hague Coventions.

Following the Gulf War, with its major and deliberate environmental destruction, there was a flurry of legal stock-taking to see what had gone wrong and to determine whether the existing law was good enough. Greenpeace and others proposed the formulation of a fifth Geneva Convention. Others suggested the establishment of an International Green Cross to protect the environment. Fairly quickly, these initiatives were taken up by the International Committee of the Red Cross (ICRC) which, of course, was concerned to protect its own unique status as the champion of humanitarian law—as expanded through Additional Protocol I to include some general environmental concerns. It was also taken up by the U.N. General Assembly, which rather cautiously decided to give the ICRC the lead to see what it could produce.

Within two years, the Red Cross produced a comprehensive report on the subject (set out in U.N. Document A/48/269 of 29 July 1993), which the General Assembly then substantially endorsed. I would commend that document to anyone interested in the subject matter of this panel, as it is very complete. The report also summarizes the frantic legal activity starting with the spring of 1991. It concludes that the time was not opportune for codifying and/or developing this area of the law, but that a number of remedial and other measures should be taken to patch up and reinforce the existing archaic regime. Many of the proposals it discusses were first articulated at the now notorious 1991 Ottawa Conference.

Actually, if one compares the Red Cross meetings with other related conferences, one finds many similarities. This is because the experts convened by the ICRC are likely to be the same persons who participated in previous and subsequent conferences on the same subject.

Having been initally amongst those who advocated a reformulation and expansion of the existing laws through a new treaty, I would now like to confess and concede the force of the arguments against such a project. My principal reason for this retreat is that stated yesterday by the Legal Adviser to the State Department, Mr. Harper. At present, governments would simply not be ready to assume any serious new obligations in this field. Any attempt to formulate a new treaty at this time would likely be regressive and, thus, counter-productive.

As the Legal Advisor to the 1979-1980 U.N. Conference on Inhumane Conventional Weapons, I saw the extent to which the military advisers jealously opposed the imposition of any restrictions that could inhibit military actions their forces might conceivably engage in, even though such restrictions would, if observed, greatly protect the troops whose commanders they were representing. I am afraid the same thing would happen if, at this stage, in this atmosphere, an attempt were made to convene a conference to improve the law protecting the environment during warfare.

This having been said, I would like to summarize a number of proposals, some of which are set out in the 1990-93 ICRC report, for improving the current state of the law. I will first direct my suggestions to the state of actual combat, on which we seem to be concentrating most, but will also cover, as was suggested in our second panel yesterday, the pre- and post-combat phases. With respect to the combat phase I would suggest that the following be done.

First, there should be a campaign to promote adherence to the existing treaties, particularly to Additional Protocol I and to ENMOD, so that they cover substantially all countries in the world.

Second, an attempt should be made to clarify the existing norms, particularly the terms "widespread," "long-lasting" and "severe," which appear disjunctively in the ENMOD Convention and conjunctively in Additional Protocol I. It is understood that these terms were meant to be different in the two conventions, as shown by the respective travaux.

The ICRC suggests that the committee of experts that may be established under the ENMOD Convention, straighten out these differences. I have some doubts about that suggestion because it would likely be one-sided.

Most important is to clarify the status of environmental treaties during armed conflicts. These include general environmental treaties, as well as the environmental provisions of the Law of the Sea Convention, the oil dumping rules, and regional seas conventions. First of all, during a status of war, what is the state of these conventions as between parties to the conflict, assuming that both are parties to the treaty in question? And secondly, what is the status between such parties and neutrals? In that connection, one must consider that during wartime certain treaties are suspended as between the parties to the conflict, and also, that certain rules may simply be inapplicable to a conflict situation.

On the other hand, one should also consider that some of the obligations established by environmental treaties, in fact, all those deriving from multilateral treaties, are *ergo omnes* obligations. Just as two parties bound by such an *ergo omnes* obligation could not, by agreement between themselves, suspend that obligation, why should they be able to do so just by going to war with each other?

Turning now to the ICRC proposal for the wide publication of the environmental rules relating to warfare and, in particular, the formulation and

distribution of manuals on environmental protection during combat. Indeed, the 1993 ICRC report has annexed a 3-page set of guidelines showing how such a manual should be formulated. That enterprise should be undertaken quite seriously. It is one of the most important measures, because, as was pointed out yesterday, all rules are meaningless unless they are known and understood at the level of the commanders who will implement them.

There is a need to establish a supervisory organ to assist the parties in implementing these provisions during wartime. One candidate, not necessarily the best nor the only existing one, is the International Fact-Finding Commission established pursuant to Article 90 of Additional Protocol I.

Turning now to the pre-combat phase, there are, first of all, the rules restricting the right to engage in military conflicts and those designed to inhibit preparation for war. In this connection I would like to call attention to a little known General Assembly Resolution on the "Historical Responsibility of States for the Preservation of Nature for Present and Future Generations." Therein the Assembly noted that the continuation of the arms race, including the testing of various types of weapons, especially nuclear weapons, and the accumulation of toxic chemicals, adversely affect the human environment and damage the vegetable and animal world; it therefore proclaimed the historical responsibility of States for the preservation of nature for present and future generations and drew the attention of States to the fact that the continuing arms race has a pernicious effect on the environment, and reduces the prospects for the necessary international cooperation in preserving nature on our planet.

I do not really think that this quite sensible statement is of much use. Nevertheless, it should be emphasized that simply preparing for war is itself apt to be environmentally destructive.

A more pertinent and practical rule, regarding the development of new weapons, is Article 36 of Additional Protocol I. It is rarely mentioned, but I consider it important. Article 36 reads as follows: "In the study, development, acquisition or adoption of new weapons, means or methods of warfare, a High Contracting Party is under an obligation to determine whether its employment would, in some or in all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party." In other words, one should not develop weapons whose use is prohibited for humanitarian reasons. Though this caution was not addressed to environment consideration, but, is formulated within the context of general humanitarian rules, it can equally apply to environmental restrictions.

In this connection, I would like to call attention to environmental impact assessments and to the precautionary principle. Neither of these makes any sense in a combat situation. But in a non-combat situation, when new weapons are being

prepared, it makes eminent sense to make such assessments and even to apply the precautionary principle.

Finally, as to the development of targeting rules, to the extent that these are made at the policy level in the Pentagon, there is an opportunity to consider environmental principles that a company commander or battleship captain would not necessarily be able to take into account. For instance, the point made yesterday regarding how to stop an oil tanker. Do you shoot at it, or do you not shoot at it. That decision should really be made back home and should be conveyed to the captain of the blockading vessel.

As to the post combat situation, I make the following suggestions. First, it might be useful to establish an international fact finding body to determine after every such conflict what happened from the environmental point of view. We are four or five years past the Gulf War and there are still questions about who did what to whom. If there had existed some sort of international fact finding organization it might have been used for this and other conflicts.

Second, is the liability of States, which might even relate to damage that was lawfully inflicted. Thus, even if it is concluded that in a war situation a particular oil pollution convention does not apply, if a State in the course of armed conflict pollutes an area, there is no reason why that State should not pay for the clean-up or for whatever other damage resulted. Why should a State be allowed to cause damage and then not compensate neutrals or innocent parties?

Third, criminal liability. I think we now have a much better basis for this than we had at the time of the Gulf War. Since then, two war crimes tribunals have been established and the General Assembly is well on its way to establishing an international criminal court. In this regard, I might call attention to a Mock International Criminal Tribunal conducted by the American Bar Association in 1991, to try Saddam Hussein on a variety of charges, including for environmental war crimes. It was an interesting exercise.

Fourth, is the question of the remnants of war. I would like to call attention to a General Assembly Resolution, again not well known, in which the Assembly states that it was: "Convinced that the responsibility for the removal of the remnants of war should be borne by the countries that planted them, recognizing that the presence of the material remnants of war, particularly mines, on the lands of developing countries seriously impedes development efforts and causes loss of life and property." Further, it regrets that no real measures had been taken to solve the problem of remnants of war, despite the various resolutions and decisions adopted by itself and by the Governing Council of UNEP. Finally, the Assembly reiterated support for the just demands of the States affected by the implantation of mines and the presence of remnants of war on their lands, and called for compensation to be paid by the States responsible for leaving those remants. This is an important subject and ought to be pursued further. You may know that a few

months ago, in June 1995, a meeting on the removal of mines was sponsored by the United Nations to address this problem.

These are the proposals that I would make for protecting the environment from the effects of international armed conflict. Thank you Mr. Chairman.

Professor Nordquist: Thank you. Our Commentator has, I am sure, provoked a couple of specific responses from our speakers. What I would like to do, as he has raised so many fundamental points, is to ask, first, that the audience be given an opportunity for questions and comments.

Vice Admiral James H. Doyle, Jr., U.S. Navy (Ret.): Professor Szasz may have retreated, but it is probably only a millimeter. You have raised a number of issues with which I take issue. We do not have all day, however, so I will focus on just one or two. I think to pursue the clarification of trying to find the true meaning of "severe," "widespread," and "long-term" is a futile exercise and will get us nowhere.

Actually, I think the standard that we have in both the San Remo Manual, which relates to military necessity, and the one that Professor Grunawalt passed out the other day, is a much more realistic standard. I would submit that it will give much more protection to the environment in specific situations than any effort to try to find the true meaning of "widespread," "long-term," and "severe."

I would, as a matter of fact, like to see Additional Protocol I eliminate that standard because I think it is meaningless. I think also that I must defend the military against the allegation that we are bound and determined to prevent any modification or improvement in the laws of war. I think from the speakers that we have heard, you will find there is a great deal of difference between assessing the context and situation and the taking of action as a policy matter, rather than an abstract legal principle. I believe that it has been shown that there is a much greater appreciation of the environment, and the necessity to protect the environment to the maximum extent, during armed conflict.

Professor Szasz: I will respond very briefly. On the point of pursuing better definitions of "widespread," "long-term," and "severe," this is really not my suggestion. It is one that the ICRC repeated several times, even in its latest report. The General Assembly also endorsed the idea that such clarification should be pursued. I, myself, share some of Admiral Doyle's doubts on that point.

I can say that at the 1979-1980 Conference I really saw the military advisers absurdly defensive of some weapons that were clearly inhumane and that the military currently clearly did not want to use, merely because it was conceivable that in the future some situations might arise in which such weapons might be of some use. I do not want to make a general accusation of all militaries at all times,

but it is my feeling, as I believe it also was of Mr. Harper, that if you now tried to get a more extensive treaty, the results would probably be counter-productive.

Professor Michael Bothe, Johann Wolfgang Goethe University, Frankfurt, Germany: I have two comments. First, the sea-land dichotomy. I completely agree with Professor Szasz that what counts is the target. As far as targets on land are concerned, the "due regard" rule of the law of the sea is not applicable. The "due regard" rule of the law of the sea is really a development of the classical law of the sea in circumstances where you had competing users making war and peace over navigation rights, as a kind of competing use, which have to be some how accommodated. That is the basic justification of the "due regard" rule.

This is not applicable to any damage caused on land. As far as damage on land is concerned, which may be caused by shooting or by releasing oil from a tanker, it is a good old rule that neutral territory is inviolate. This means a protection of the neutral against the effects of war. The fact that two countries make war between each other does not give them any right to cause damage to neutral territory. The relationship between the parties to a conflict and neutral States is governed by the laws of peace. There are exceptions, mainly in the field of naval warfare. However, there is no rule of customary international law permitting States to cause collateral damage to neutral territory.

My second point is the question of "new law." I think what all the speakers have very convincingly shown is that this is a good subject for discussion. Why is this a good subject for discussion? Because there are uncertainties to say the least. It would be quite an appropriate purpose of new law to resolve those uncertainties. The main argument I have heard against the development of the law yesterday, and this morning, is that, for the time being, it is not advisable to try to get new laws because that would be regressive and because States do not want to undertake additional obligations and so on. Granted that may be so, but the fact that States are reluctant to accept something does not necessarily mean that it is not necessary to try.

We can then surrender to the objective necessities of universal diplomacy and the like, but there is no reason to be really content with this situation. That being so, I am, of course, very much tempted by Professor Szasz's approach which asked; "if we cannot achieve a treaty which might be desirable, what can we do in the meantime?" I agree that there are a number of steps which can be taken for the purpose of clarifying the law by whatever means. I think the military manuals are a good place to start in addition to consultation between countries concerning rules of engagement, in certain situations. There is also the approach of utilizing conferences of these parties to environmental treaties. In reviewing those treaties, pay more attention to the question of what happens within the scope of the treaty in the event that an armed conflict breaks out. Thank you.

Professor Nordquist: Thank you. May I ask Professor Walker if he would respond perhaps to the first point you made, then Professor Roberts, maybe you can comment on his second point.

Professor Walker: In discussing "due regard," I come back to my first disclaimer. What I was talking about primarily was the law of the sea, the law of naval warfare, and the environment.

Professor Roberts: On Professor Bothe's second point, about the desirability, or otherwise, of a new convention, I think it is mischievous of him to imply that those who are skeptical about the value of a new convention are skeptical exclusively, or even largely, on the grounds that States do not want it, or are reluctant to embark on a new negotiation. There is another ground, which is that nobody could quite see the desirable shape of such a new convention or how to make a serious advance on the existing treaty provisions.

Professor Ivan Shearer, University of Sidney: I just want to make two or three very brief comments. The first on Professor Walker's paper, which I have not yet read, but the summary was very interesting. I want to comment on the apparent disagreement between Professor Walker and Professor Szasz over the nature of Article 51 of the U.N. Charter as a kind of a "trump." Maybe the true explanation is that the law of armed conflict, including the right of self-defense, is *lex specialis*, viewed against the *lex generalis* of environmental and other laws that apply in peacetime.

So one of the things we are looking at here, I think, is to what extent environmental protections are incorporated in the *lex specialis* of the law of armed conflict through the principles of military necessity and proportionality.

The second comment that I want to make concerns Professor Roberts' reference to Geneva Convention IV of 1949, Article 147. Several people have mentioned this. I am sure he did not mean to do so, but it came out as a general rubric against environmental destruction. Of course, it has to be remembered that that provision relates only to the duties of an occupying power vis-a-vis civilians. Now, that, of course, was the situation in Kuwait. It leads to an interesting question of whether there is a shift from the duties that Iraq owed Kuwait under Article 147. Is there a shift once the occupying power begins defending that territory against the attempts by the lawful owners to reoccupy it? Does one then move into a different world where Article 147 does not apply, but some other rules do? I just throw that open for discussion and would be interested to see if anybody has an explanation for that. The background of Article 147 is to be found in the Hague Conventions,

which refer to the occupiers as usufructuary. So, I think there is an unresolved conflict there.

Finally, I wonder whether Professor Roberts really thought it was a mistake for the allies not to have specifically warned Iraq against environmental damage. What else should we have warned him not to do? We were dealing with someone who was not entirely rational. At least we thought he was not entirely rational. To give him a whole list of things that he should not do might only put ideas into his head. Thank you.

Professor Nordquist: Thank you very much. We have to give our panel an opportunity to respond to what has been said to this point.

Professor Roberts: Both those points are well taken. On the first, within the limits of time available, I was using Article 147 of the Geneva Convention as an example of the fact that there are long-established provisions which cover many, but I would agree with those who have said not necessarily all, cases of environmental destruction. You may be right that at a time when the occupation of Kuwait was ending and a struggle for reconquest of Kuwait was beginning, you could argue whether the applicable law was that relating to occupied territory, or that relating to armed conflict. There are provisions, including those in the Hague Convention of 1907, which would govern the situation of armed conflict. So one does not rely on one provision alone.

As regards the proposition about putting ideas in Saddam Hussein's head, I think, unfortunately, there were quite a lot of ideas there already. The Coalition did specifically warn Iraq about environmental destruction, or at least about destruction of the oil wells, in George Bush's letter of 9 January 1991. So there was a very clear warning. It is a question of judgement whether that letter could or should have been followed up. A number of other matters were successfully pursued in the leaflet campaigns including the issue of non-use of gas and the very successful campaign persuading Iraqi soldiers that if they left their vehicles they would be a great deal safer than if they stayed in them. To me, it is still something of an oddity that there was no effort made to persuade officers within Kuwait, who were going to be ordered to carry out the task, that the destruction of the oil wells would be a war crime. That simply was not spelled out with clarity to the people who counted.

I agree that the threat of destruction of the oil wells probably could not have been made a central issue to the same extent as the threat of use of gas. But nonetheless, it would not have been putting ideas into Suddam Hussein's head. As Bill Arkin reminded us yesterday, he had explicitly planned this oil destruction from August 1990 and had publicly threatened the Coalition with it in September 1990.

Professor Szasz: I would like to comment on the issue of Article 51. I do not doubt it is *lex specialis*, but all I was saying is that Article 51 does not create a right of self-defense. Therefore, U.N. Charter Article 103 does not give self-defense a higher status than other activities of States. Self-defense, and all that goes with it, has to stand on its own legal feet. It can not rely on the Charter to exempt it from rules governing other military actions.

Dr. Hans-Peter Gasser, International Committee of the Red Cross: I would like to say a few words about where the ICRC stands now and what we have on the program. I have a copy of the 1993 report mentioned by Professor Szasz. If the organizer would be so kind to Xerox it, it could be at the disposal of everybody.

In 1993, many points were brought out which have already been mentioned. First, the relation between the ENMOD Convention and Additional Protocol I. We are not really pursuing that matter and we leave it to others. No action is planned in this respect.

Second, the applicability of armed conflict to international environmental law. There is no question that general environmental law continues to be binding in armed conflict. There is indeed a necessity to clarify the law of the subject.

Third, the protection of the environment and restrictions on the use of mines. The mines issue, which generally has not been directly associated with the environmental question, of course, is actually very much associated with it. As you know, next week the Review Conference of the 1980 Conventional Weapons Convention meets in Vienna. The ICRC is on record for having called for a complete ban on anti-personnel land mines for humanitarian reasons. But also, the environment is being used as a kind of vehicle which must also be protected in order to protect human beings which move around in the environment. Therefore, there is the proposal to put a complete ban on anti-personnel land mines. Most governments do not follow that line of thinking. However, we remain absolutely convinced that with time, the military will understand that such anti-personnel land mines should be outlawed. It is estimated that there are about a hundred million land mines now scattered all around the world. Therefore, action on this issue is expected.

The issue of the protection of natural reserves and parks has been handed over to UNESCO. The protection of the environment in time of non-international armed conflict is an important topic. We attempt to deal with that issue through the distribution and use of manuals. Manuals should be used in all types of international armed conflict without making any difference between the two categories. Distribution of manuals is high on our priority list. With regard to the rules for the protection of the environment, this will be a discussion topic tomorrow where I will present some proposals.

Utilizing the Article 90 Fact Finding Commission, as a means to monitoring compliance, is to be commended. Finally, dissemination being the beginning and the end with respect to furthering respect for humanitarian law.

I have just one comment regarding Professor Roberts' statement that any violation of the rules regarding the environment is also a violation of some other rule. He seems to place more emphasis on the other rule and not so much on the violation of the environmental rule. Specifically, he felt that ICRC and others have put too much emphasis on the environmental side in the case of the Gulf War. Well, I wonder whether placing so much emphasis on the property approach is so satisfactory. If I look at the Gulf Report of the United States Armed Forces, under the heading of Environmental Terrorism, the text seems to indicate that the environment is not important, it is just a question of property. I do not think this is really a good statement of where we stand. There are so many problems with regard to the environment. I think it is important to put forward, and refer to, environmental rules and Additional Protocol I, even though some other provisions may be affected. Thank you.

Professor Nordquist: Thank you. I am going to ask the panelists to keep their rounds chambered and ask Professor Green, Dr. McNeill and then, Professor Shearer, to respond and then close the list unless anyone is really moved. Professor Green.

Professor Leslie C. Green, University of Alberta: All I will say about Ottawa at this stage is that I have the feeling from a number of the comments that have been made that there is a complete misunderstanding of the purpose of the Chairman's concluding statement at that Conference. I wish they would go back and look again and see why the Chairman made the statement he did.

With regard to Article 51 of the Charter, generally, I think we ought to remember that the purpose of the Charter was to preserve the peace. As such, I think Professor Shearer gets close to it when he points out in his *lex generalis*, "We must be very careful not to quote the Charter, not to keep going back to the Charter once we are in a stage of armed conflict." The law of armed conflict is very much *lex specialis*. There is nothing in *lex generalis* that forbids a resort to *lex specialis*, particularly when the *lex generalis* in question is related to an entirely different type of issue, the preservation of peace, the prevention of conflict. Therefore, the debate on Article 51, whether it creates a right or recognizes a right, I submit, becomes completely irrelevant.

In regard to the problem of new law. It is very nice to talk about new law. It is a lovely ideology. It gives a very good feeling to the lawyers who may be involved in the discussion. But in too many cases, particularly in recent years with this new political correctness that we have on an international level, where we all have to

bow down to the views of the developing countries come what may, I have the feeling that too often when we are talking about "new law" we find that the developing countries, bless them, do not like the "old law." In too many cases, we are likely to go backwards rather than to go forward. That was very clear over the issues in the Law of the Sea Conference with regard to no longer recognizing the territorial sea as it had been understood for centuries.

Again, the other thing that arises with regard to the new law is very much like what happens whenever the U.N. is discussing a humanitarian prospect. We all love humanity, so long as we do not have to do anything about it. Therefore, we get to the point in the Assembly that when there is a humanitarian issue being considered, we go by consensus, which saves any of us from saying "no." I fear that when we talk about "new law" we may get a new law that nobody wants anyway and nobody is going to do anything about. I always have the feeling that, from the point of view of the impact on the public, a new law that we know nobody is going to do anything about just brings the whole law into complete disrepute.

Dr. John H. McNeill, U.S. Department of Defense: There are many wonderful targets of opportunity here that could be engaged, but I would like to confine myself to a comment and to a question that have both arisen out of our discussion, particularly with respect to what Professor Bothe said about warring parties not having the right to cause damage to neutral territory. That in itself, I think, was engendered by remarks of Paul Szasz, who referred to a number of General Assembly resolutions and perhaps others calling upon the warring parties, the States that have participated in a conflict, to collect their own remnants, if I understood him correctly.

I think there is something very important that is missing from that approach which is that there seems to be no recognition of the fact that in many conflicts today, and particularly in the recent Gulf War, there was an aggressor. I fail to see why States exercising the right of self-defense against an aggressor should be penalized for, in effect, protecting their own survival from what an aggressor has perpetrated upon them—they, being the innocent victim. I certainly hope that there is not a trend that we are going to see that treats everyone exercising the use of force, whether legally or illegally, the same when it comes to damages. I am not sure that the standard of damages should be that suggested by Professor Bothe, that warring parties should somehow be responsible for any and all damage to neutral territory. I know it has been suggested that even affects caused by ships at sea, having a conflict on the high seas, might have an affect on the biosphere and that they should be penalized financially for engaging in that act.

Fortunately, I think that is still a ways off, although pending litigation may prove me wrong. I would like to focus on this, and I wanted to ask Professor Szasz, particularly, if Resolution 687—which specified that Iraq should be financially

liable for the damage it caused and which also sets up the U.N. Claims Commission to look at damages, including environmental damage and, basically, all damages that flow from aggressive acts—is not the correct way to look at the problem.

Professor Szasz: In response to that point, I think Resolution 687 is correct. It says that, ultimately, Iraq will have to bear responsibility for the damage it caused. It does not quite answer the question of whether, since Iraq is not paying, somebody else who caused damage should also pay for the damage to a neutral. Now, of course, this military action was a bit different, this was a U.N.-sanctioned action and, therefore, one could say that the entire world community was lined up against Iraq. Those who simply acted as instrumentalities but caused damage, should not, therefore, themselves have to carry more responsibility. What I was saying before is that, as between two combatants and a neutral, if a neutral is damaged, there is no reason why even the combatant who is right should not initially reimburse the neutral even though the former might be able to recover ultimately from an aggressor.

Let me make one more point with respect to Professor Bothe's suggestion. What I said was that not only do the rules of land targeting apply where the target is a neutral, but also where the target is the other combatant. The rules as to land targeting require combatants to follow the rules of Geneva Convention IV so as to protect civilians, rather than being bound by any "due regard" principles of naval warfare. So the prior suggestion mentioned, which I did not really contemplate, is the target State being the other combatant.

Professor Roberts: In answer to Dr. McNeill, I am slightly worried about what he said concerning the significance of the war being against an aggressor, because it does still remain, as he well knows, that the basic rules of the law of war apply equally to all combatants during the course of the war. It may be that questions of reparations subsequently are a different matter. But in the course of the war, it is still the case that, for practically all purposes, the law has to apply equally to all belligerents.

In response to Hans-Peter Gasser, I do not want to be depicted as saying, in connection with the protection of the environment, "forget Additional Protocol I and just stick to ancient rules." That is not my position. My position is that, yes, indeed, there is an important principle enunciated in Additional Protocol I in respect to protection of the environment. However, it does set a very difficult standard to meet. It is not a case of abandoning Additional Protocol I. It is a case of looking, as well, at the provisions of earlier treaties; at other provisions within Additional Protocol I which cover, better than any previous treaty, the issue of accuracy in targeting; not destroying civilian objects, and so on and so forth. So

it seems to me that there are other provisions which are highly important. I cannot resist throwing that in at the end of the session when nobody can directly reply.

In Britain, I think, we have interpreted the experience of the Gulf War as reflecting rather positively on Additional Protocol I, which contributed to the decision of the U.K. Government to ratify the Protocol. The ratification will actually be implemented imminently, but all the legislation is through. I know that there are many other issues in the United States concerning whether or not we want to ratify besides the issue of our experience in the Gulf War. Our interpretation of the experience, and I think some U.S. interpretation of the experience, is that Additional Protocol I does enunciate a number of very useful rules in clearer form than in other treaties and, therefore, is worth pursuit.

Finally, I think we have had some tendency in the discussion to find what I would call "lawyerly solutions to para-political" problems. I do not believe that simply setting up another international fact finding commission or trying, by some new means, to have an international criminal tribunal look at the problems of cases such as the Gulf War, really addresses the fundamental problem which is that we live in a world of States. This same problem is arising in respect to the former Republic of Yugoslavia, where there are very difficult problems of determining whether or not one can effectively bring violators of the law of war to court. It is a problem that has preoccupied governments throughout this century and never more so than at present. I think that some times we have to admit that there may not be solutions to these problems and, certainly, there may not be "lawyerly" solutions to these problems in the form of tribunals or courts which are capable of really meeting the need that is undoubtedly there.

Professor Walker: Two quick thoughts. The first is that some of the concern is about potential "liability of innocent States" in terms of punishing an aggressor. I can see a situation where a response may be totally disproportionate, although the position taken is whether there was "due regard." If calculated in proportionality, the due regard principle will take care of some of those problems. The second point is that we have to find out about the relationship of the environmental protection conventions such as the 1982 Law of the Sea Convention and regional conventions. I reiterate my paper's point that the other rules and principles take care of all that. Thank you.

PART FIVE

PANEL IV: THE EXISTING LEGAL FRAMEWORK, PART II—PROTECTING THE ENVIRONMENT DURING NON-INTERNATIONAL ARMED CONFLICT OPERATIONS INVOLVING THE USE OF FORCE

Chapter XVII

International Environmental Law Considerations During Military Operations Other Than War

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I. INTRODUCTION

U.S. forces are increasingly being tasked to conduct military operations other than war. Military operations other than war include a very broad range of missions, from nonconsensual situations, such as peace enforcement, which may include combat, to operations under consensual circumstances such as humanitarian assistance and disaster relief. At the same time, environmental awareness and concern for protection and conservation of the environment is developing at all levels, from national leaders to citizens, from commanders to soldiers. It is therefore not surprising that discussion and debate of the relationship between international environmental law and military operations other than war is occurring. This paper will briefly discuss existing international environmental law principles, comment on emerging principles, and then relate the discussion to military operations other than war.

II. CUSTOMARY PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW

Overview

While numerous treaties exist regarding environmental matters between nations, most address narrow regional, and often bilateral issues, and do not have universal application. There are, however, a few principles having global application. The primary principle of international environmental law is the duty not to cause significant environmental damage to other States and areas beyond national jurisdiction. This principle is accepted as customary international law. Growing out of this central principle of international environmental law are several corollary principles.

Central Principle - Duty Not to Damage Other States and Areas Beyond National Jurisdiction.

Principle 21 of the Declaration of the United Nations Conference on the Human Environment sets forth this basic principle:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.[1]

The principle is also expressed in numerous treaties,[2] found in international case law,[3] and has been adopted in the Foreign Relations Law of the United States Restatement of the Law Third.[4]

The principle does not establish a duty to protect the environment, but instead establishes a duty not to damage another State's environment or the environment beyond the limits of any national jurisdiction. The principle affirms the right of a sovereign to exploit its own resources, although it does assume that "environmental policies" exist. The Restatement sets forth the rule by stating:

> A State is obligated to take such measures as may be necessary, to the extent practicable under the circumstances, to ensure that activities within its jurisdiction or control (a)conform to generally accepted international rules and standards for the prevention, reduction, and control of injury to the environment of another State or of areas beyond the limits of national jurisdiction; and (b) are conducted so as not to cause significant injury to the environment of another State or of areas beyond the limits of national jurisdiction.[5]

The Restatement adds two important qualifiers to the principle. First, the State's obligation to not cause damage to another State's environment, or the environment of areas beyond national jurisdiction, is limited "to the extent practicable under the circumstances." Second, the obligation is not to cause "significant injury." Neither of these qualifiers are defined or developed in the international arena.

The inclusion of the obligation not to cause significant injury to areas beyond the limits of national jurisdiction, is important because it portends emerging principles of international environmental law to the effect that States have an affirmative obligation to protect the environment. In addition, it suggests that injury to the global environment is a concern of all States, another trend emerging in the law.

It is also significant that the principle applies to activities within a State's "jurisdiction and control." Certainly the actions of a State's armed forces are within its "control" and thus fall under the obligation to not cause significant injury to another State's environment, to the extent practicable under the circumstances. This obligation is consistent with principles found in the law of

armed conflict which disallow destruction of the environment when not justified by military necessity.[6]

Corollary Principles - Duty to Notify and to Take Measures to Prevent and Reduce Significant Environmental Damage or the Potential for Such Damage.

Related to the principle that a State is responsible not to cause significant environmental injury to other States and areas beyond national jurisdiction is the duty to inform States and competent global or regional international organizations of such damage. If a State becomes aware that an activity in its jurisdiction or under its control may cause significant injury to the environment of another State, it has a duty to notify all States threatened by the pollution and competent international organizations.[7]

Also growing out of the State's duty not to cause significant environmental injury is an obligation to take precautionary measures when an activity is contemplated that poses a substantial risk of significant environmental injury to an area beyond its border and to take measures to mitigate any such injury.[8] Included is an obligation to take affirmative actions to mitigate the damage when its actions have significantly damaged areas beyond national borders. A similar duty to take affirmative action is unclear when significant damage takes place within another State. While there would be an obligation to prevent, reduce or terminate the activity, to the extent practicable under the circumstances, and duty to pay reparations, the obligation to actually assist the impacted State in environmental cleanup and response is subject to questions of sovereignty.[9] A State cannot assist in mitigating environmental damage within another State's jurisdiction other than by agreement, and a State could not be compelled to agree to a course of action it found untenable.

Finally, in order to comply with these duties, a State will need to have some basic mechanism for environmental assessment of actions under its control in place. Without such mechanism, a State cannot assure prevention of significant damage to other States or areas beyond the limits of national jurisdiction which is preventable under the circumstances. Nor can a State provide notification of the potential for such damage to other States and competent international organizations. The emerging duty to assess environmental impacts is discussed later in this paper.

Law of Armed Conflict Principles and Environmental Protection

The law of armed conflict seeks to prevent unnecessary suffering and destruction by controlling and mitigating the harmful effects of hostilities through minimum standards of protection to be accorded to combatants and to noncombatants and their property. Certain of the principles of the law of armed

conflict may also shield the environment from wanton destruction during international armed conflict.[10]

The underlying principle is set forth in Article 22 of the Regulations annexed to the 1907 Hague Convention Respecting the Laws and Customs of War on Land.[11] Article 22 states that "The right of belligerents to adopt means of injuring the enemy is not unlimited." Article 23 of the Regulations then prohibits the use of poison or poisoned weapons. That article also prohibits the destruction of property unless such destruction is demanded by the necessities of war.[12] The Geneva Conventions reiterate these principles and make extensive destruction not justified by military necessity a grave breach of international law.[13]

The 1977 Protocol I Additional to the 1949 Geneva Conventions Relating to the Protection of Victims of International Armed Conflicts[14] explicitly addresses protection of the natural environment in Articles 35 and 55. Article 55 also links human health and survival to the environment. Article 55—Protection of the Natural Environment, states:

> 1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.
>
> 2. Attacks against the natural environment by way of reprisals are prohibited.

Although this provision of Additional Protocol I is not accepted as customary international law, its linkage of human health and protection of the environment is significant as it contributes to a trend connecting human health, human rights and protection of the environment. This trend moves international environmental law away from its early foundation of merely obligating States to protect against injury to other States, towards a broader obligation to protect the environment in general.

Protocol III of the Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects also contains a provision which protects the natural environment.[15] Article 2 of Protocol III, entitled "Protection of civilians and civilian objects," prohibits the use of incendiary weapons to attack forests or other kinds of plant cover unless they are being used to conceal or camouflage combatants or other military objectives, or are themselves military objectives.[16] Like some provisions of Additional Protocol I, Protocol III of the Conventional Weapons Convention is not accepted as customary international law.

III. EMERGING PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW

Overview

International environmental law is emerging and will continue to emerge rapidly. The impetus for rapid development includes growing scientific understanding of the interdependence of ecosystems, and the recognition that the survival of entire ecosystems are being threatened by population growth and ever increasing demands for land and natural resources. Against this backdrop of growing scientific understanding, the relationship between national security interests in a stable and self-sustaining world order and environmental degradation is being debated and evaluated. In addition, human rights law has begun to explore and develop the relationship between human rights and the right to an environment meeting the needs of basic human development. While its foundation rests in traditional bilateral and multilateral treaties addressing specific regional resource issues, its trend is to go beyond issues of bilateral or multilateral State conflict, towards principles that protect the environment in a global manner, towards the formation of obligations *erga omnes*. Obligations *erga omnes* are international norms which the global community of nations recognize a common interest in protecting and enforcing, such as the protection of basic human rights. The central underlying principle of these emerging duties is the concept that natural areas of outstanding universal value from the scientific, conservation, or aesthetic point of view, while under the sovereign control of one particular State, are of global value and that all States have a duty to cooperate in the preservation and protection of these areas for this and future generations. At the most basic level, it is recognized that human survival depends on the preservation of a minimum environmental quality.

Duty to Protect and Conserve the Environment and Natural Resources

At present, international environmental law does not explicitly require a State to protect and conserve the environment nor its natural resources within its boundaries. While many States have entered treaties and have enacted national laws requiring them to protect and conserve the environment, or particular parts of the environment, there is not an underlying principle of international law requiring such protection and conservation.

However, a general duty to protect and conserve the environment and natural resources is beginning to emerge. It can be detected in the growth of national laws protecting the environment,[17] in the declarations and nonbinding resolutions of international organizations and conferences,[18] and in the proliferation of multilateral treaties protecting different aspects of the environment.[19]

In regard to national laws, at least 40 nations now incorporate the right to environment in their law or constitutions. The term "right to environment" is

used to refer to the concept that a fundamental human right exists in maintaining a certain level of environmental quality. The level of protection provided by this "right to environment" is not well defined and ranges from an environment minimally able to support human life to an environment which is healthy and ecologically balanced. Almost all constitutions adopted or revised since 1970 include a right to environment. The right to environment places on the State an affirmative duty to protect the environment to some extent.[20] It must be reiterated that the minimum environmental quality acceptable is, at best, ill defined. In the United States, while no right to environment has been articulated, the number of Federal statutes designed to protect the environment has grown from 5 in 1970 to 47 in 1995. In addition, in accordance with the National Environmental Policy Act, Federal Agencies must consider the environmental impact of any major Federal action undertaken.[21] Also indicative of the growing practice of States to assume a duty to protect the environment are the environmental principles enunciated by the members of the European Union. The members have agreed to the following principles of action: to preserve, protect, and improve the quality of the environment; to contribute to the protection of the health of individuals; and, to ensure a prudent and rational utilization of natural resources.[22]

There is also a growing link between protection of human rights and the environment. This relationship is reflected in several international documents and in recent cases undertaken by the European Commission on Human Rights.[23] The 1972 Stockholm Declaration[24] suggests a "fundamental right" to "an environment of a quality that permits a life of dignity and well-being." In 1990, the U.N. Human Rights Commission adopted a resolution directly linking human rights to the preservation of the environment.[25] The 1992 Rio Declaration on Environment and Development states that persons are "entitled" to a healthy and productive life in harmony with nature.[26] The protection of the environment as a fundamental human right can be seen as one strand in the emerging duty to protect and conserve the environment and natural resources. This relationship, between the need to protect the environment at a minimum level and the protection and promotion of human rights, is still being explored and defined. It is interesting to note that, at the same time, the relationship between national security, global and regional stability, and the status of the environment is being discovered and debated.

There are also several international declarations and resolutions reflecting a duty to protect and conserve the environment. The Declaration of the United Nations Conference on the Environment states, in Principle 1:

> Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well being, and he bears a solemn responsibility to protect and improve the environment for present and future generations.[27]

Subsequently, in Principle 21, the Declaration concedes that environmental protection within a State is a sovereign right to be executed in accordance with its own environmental policies and that the State's only international obligation is to ensure that its activities do not cause damage to another State or to areas beyond its national jurisdiction.[28] As stated earlier, the allusion to national environmental policies is significant in this early international declaration on the environment.

The 1982 World Charter for Nature declares:

> 3. All areas of the earth, both land and sea, shall be subject to these principles of conservation; special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitats of rare or endangered species.
>
> 14. The principles set forth in the present Charter shall be reflected in the law and practice of each State, as well as at the international level.
>
> 22. Taking fully into account the sovereignty of States over their natural resources, each State shall give effect to the provisions of the present Charter through its competent organs and in co-operation with other States.[29]

The 1982 World Charter, while still conceding that each State has the sovereign right to manage natural resources under its jurisdiction, goes much further then the 1972 Stockholm Declaration by stating that the principles, including the principle of conservation, "shall be reflected" in national law and practice, as well as at the international level. Comparison of these two United Nations sponsored documents on the environment, set ten years apart, reflects the emergence of an obligation to protect the environment.

This emerging concept is also seen in treaty law. The most direct and leading example of the concept that a State has a duty to protect and conserve the environment in marine areas under its jurisdiction and control is found in the 1982 United Nations Convention on the Law of the Sea. Articles 192 and 193 of the Convention provide:

> Article 192: States have the obligation to protect and preserve the marine environment.
>
> Article 193: States have the sovereign right to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve the marine environment.[30]

While only addressing the marine environment, the concept that a State has a duty to protect and conserve the environment is strongly stated in a document with wide acceptance in the international community. In regards to the marine environment, this duty to protect and conserve can also be found in the eight

Conventions and 14 Protocols of the United Nations Environmental Program regional sea program.[31]

The principle of conservation is also reflected in the Ramsar Convention on Conservation of Wetlands of International Importance, the UNESCO Convention on the Protection of the World Cultural and Natural Heritage, and the Treaty on the Conservation of Wild Migratory Species.[32] In each, the international significance of natural resources, including wildlife, is recognized and the parties agree to protect and conserve for the benefit of mankind these resources through the application of national law and policy. These treaties are important in the development of an international obligation to protect the environment because they recognize and reinforce the principle that conservation of the environment and natural resources is of universal value. There are also numerous regional treaties where the parties agree to protect and conserve the environment and natural resources. Examples of these include: The Bern Convention on the Conservation of European Wildlife and Natural Habitats,[33] which recognizes that wild flora and fauna are a natural heritage which should be preserved for future generations; The ASEAN Convention on the Conservation of Nature and Natural Resources,[34] which recognizes the importance of natural resources for present and future generations and requires the parties to adopt, within the framework of national laws, conservation strategies and coordinate those strategies within a framework of conservation for the Region; and, The African Convention on the Conservation of Nature and Natural Resources,[35] in which the parties agree to adopt the necessary measures to ensure conservation, utilization and development of soil, water, flora and fauna resources in accordance with scientific principles and with due regard to the best interest of the people.

Certainly, the development of this general obligation to protect and conserve the environment will be subject to the "practicable under the circumstances" rule, just as the duty to not cause significant environmental damage to another State is subject to this qualification. Nonetheless, this developing duty expands the existing principle both in a geographic and qualitative sense. The emerging duty obligates the State to protect and conserve the environment within and without its boundaries through affirmative efforts and not just to avoid significant environmental damage.

Duty to Give Special Consideration to the Preservation of Endangered Species and Their Habitats

Along with the emerging duty to protect and conserve the environment in general, there is an increasing concern over preservation of endangered species and their habitats. Consideration for the protection of endangered species and their habitats can be seen as a special area of responsibility developing under international environmental law. States have demonstrated a strong and urgent

interest in cooperating in preserving these disappearing elements of earth's ecosystem, both on the global and regional level. With an estimated one species expiring per day and predictions of one species per hour by the year 2000, there is an urgency lent to preserving species and habitats that has and will continue to unite international efforts.[36]

There has been a great proliferation of national laws providing special protection to endangered species and their habitats. The Endangered Species Act (ESA) of the United States is a leading and well developed example of this type of legislation.[37] The legislation sets forth a mandate that all Federal Agencies will protect and preserve endangered species and their habitats. The ESA places an extremely high value on preserving endangered species and applies to U.S. actions extraterritorially.[38] The U.S. Supreme Court has concluded that Congress' intent was to "halt and reverse the trend towards species extinction whatever the cost."[39]

There is also special attention given to, and calls for additional protection and consideration of endangered species among international declarations and resolutions. While not binding, such declarations and resolutions reflect international concerns which, over time, may develop into international principles of customary law. The 1972 Stockholm Declaration on the Human Environment contains a rather bland declaration on the issue of endangered species:

> Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat which are gravely imperiled by a combination of adverse factors.[40]

Ten years later, in the United Nations World Charter for Nature, the call for consideration and protection of endangered species has grown much stronger and more direct:

> . . . special protection shall be given to unique areas, to representative samples of all the different types of ecosystems and to the habitats of rare or endangered species . . .[41]

In addition, The World Conservation Union and the Worldwide Fund for Nature, both well known, respected, and influential nongovernmental organizations, have emphasized the need to provide protection to endangered species and habitats. In this regard, the organizations cooperatively publish and widely distribute to governments and other organizations the Red Data Books which serve to list threatened and endangered species and to encourage efforts to preserve these vanishing portions of the global environment. The Red Data Books provide an excellent and necessary tool for States if they are to consider in their actions the preservation of endangered species and their habitats.

The emerging international commitment to consider the protection of endangered species is also found in treaty law. Perhaps the leading example of this commitment is found in the Convention on International Trade in Endangered Species of Wild Fauna and Flora.[42] The contracting States agree that wild fauna and flora are an irreplaceable part of the natural systems of the earth, which must be protected for present and future generations. Further, the parties agree that international cooperation is essential to the protection of endangered species. The Ramsar Convention is another example of an international agreement of global application which addresses the need to protect endangered species and their habitats.[43]

There are several regional treaties which address the duty of providing protection for endangered species and their habitats.[44] The ASEAN Agreement is a leading example of a regional treaty specifically protecting endangered species. The parties agree to prohibit the taking of endangered species, to regulate trade in specimens and products of endangered species and to provide special protection for their habitats.[45]

In addition, several treaties exist which are designed to protect individual species.[46] The Convention on the Conservation of Polar Bears is an example of this type of treaty. The parties agree that a special responsibility and interest exists in protecting the Arctic region and the polar bear.[47]

In light of the proliferation of national laws, declarations and efforts of international organizations, and the growing body of treaty obligations to preserve endangered species and their habitats, it is fair to conclude that an international consensus is forming regarding a duty to give special consideration to preservation of endangered species and habitats. As with the emerging obligation to protect and conserve the environment, the exact extent and form of this obligation is still being explored and developed. This emerging obligation will likely be required only to the extent "practicable under the circumstances."

Duty to Preserve Properties of Natural Heritage

Similar to the emerging duty to preserve endangered species and their habitats is an emerging duty to identify and preserve natural areas of outstanding and universal scientific, conservation, or aesthetic value. These areas of natural heritage are akin to areas of cultural heritage which are already recognized as warranting special protection from the destructive forces of war.[48]

The leading document regarding the concept that certain properties have a universal value which should be identified and cooperatively protected by all States for all future generations, is the World Cultural and Natural Heritage Convention.[49] The 112 parties to the Convention declare that:

> it is essential . . . to adopt new provisions in the form of a convention establishing an effective system of collective protection of the cultural and natural heritage of

outstanding universal value, organized on a permanent basis and in accordance with modern scientific methods.

Article 5 of the Convention sets forth the obligations of the State parties in regard to property and areas within their own jurisdiction, which possess special cultural and natural heritage. Among them are obligations to integrate the conservation of these properties into planning programs for their protection; and, to take the necessary measures to identify, protect, conserve, and rehabilitate properties of cultural and natural heritage. Article 6, paragraphs 1 and 3, set forth the obligations States undertake to protect and preserve these properties on an international level:

1. Whilst fully respecting the sovereignty of the States on whose territory the cultural and natural heritage mentioned in Articles 1 and 2 is situated, and without prejudice to property rights provided by national legislation, the States Parties to this Convention recognize that such heritage constitutes a world heritage for whose protection it is the duty of the international community as a whole to cooperate.

.....

3. Each State Party to this Convention undertakes not to take any deliberate measures which might damage directly or indirectly the cultural and natural heritage referred to in Articles 1 and 2 situated on the territory of other States Parties to this Convention.

Article 6 affirmatively steps in the direction of establishing an international duty to not only cooperate in the protection of the "world heritage," but to positively avoid actions which might damage such properties.

The Convention goes on to establish a World Heritage List where items qualifying for protection are published. 332 items, including 75 natural sites, from 112 different nations are presently on the list.

Several other treaties also reflect the concept that certain areas of the global ecosystem have special significance to all nations and should be specially protected.[50] The Ramsar Convention, previously discussed, is an example of a global treaty, structured around the precept that certain areas, (*e.g.*, identified wetlands) have international value which all States share an interest in preserving.

As mentioned earlier, this emerging principle of special duty to protect items of natural heritage closely resembles, although it is not as developed as the customary law of armed conflict principle found in the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict.[51] The law of armed conflict principle prohibits the targeting of cultural property during armed conflict. Of course, the principle also requires a State not to make cultural property a legitimate target by using it for military purposes. Not surprisingly, some commentators on the law of armed conflict have suggested the principle of

protecting cultural property be extended to protect areas of environmental significance.[52]

Duty to Assess the Environmental Impact of Actions

As discussed earlier, to the extent required to avoid unnecessary significant environmental damage to other States and areas beyond national borders, and to the extent necessary to provide notice of the potential for significant environmental damage, States should possess some mechanism of environmental assessment. In addition to this existing need for environmental assessment under customary international law, an affirmative State duty to assess the environmental impact of actions under their control is emerging. The concept can be found in national laws, international declarations, and treaties. Such a principle would seem a logical part or precursor to the emerging duty to protect and conserve the environment. Without an assessment of the environmental impact of an action, it is unclear how a State could comply with a duty to protect and conserve the environment. An environmental assessment would allow a State to choose actions which avoid or mitigate adverse impacts to the extent practicable under the circumstances.

The United States' National Environmental Policy Act (NEPA) and Presidential Executive Order (EO) 12114 are leading examples of the adoption of this concept by a State.[53] NEPA requires Federal Agencies "to the fullest extent possible" to integrate environmental concerns in the decision making-process, develop procedures and methods to ensure environmental concerns are given appropriate consideration, and prepare environmental impact statements on any major Federal action significantly affecting the quality of the human environment. NEPA also creates a right for public comment and judicial review of the analytical procedures. The ultimate goal is that the Federal Agency will make an informed decision which alleviates or mitigates adverse environmental impacts to the greatest degree possible. Presently, NEPA is not applied extraterritorially, with the exception of actions in the Antarctic.[54] However, EO 12114 requires NEPA-like analysis to be applied to major Federal actions that significantly affect the environment outside the geographic borders of the U.S., its territories and possessions. The EO does not call for public comment nor establish any judicial cause of action. In addition, it is careful to recognize and give regard to the foreign policy and national defense implications of requiring environmental assessments of U.S. actions beyond U.S. borders.

Other nations, as well as international bodies, have adopted this concept. For example, the European Union has included the requirement for environmental assessment in Council Directive 85/337. Article 2 of the Directive requires Members to establish measures to assess the impact of public or private projects which may have a significant effect on the environment.

The Organization for Economic Cooperation and Development calls for environmental assessments prior to projects potentially having significant effects on the environment in Principle 9 of its Declaration Concerning Environmental Policies.[55] The United Nations Environment Program's Principles of Conduct recites the duty of environmental assessment in Principle 4.[56] The World Bank has established formal environmental procedures for the screening of environmental impacts of proposed projects.[57]

The concept can also be found in international treaties.[58] Once again, the 1982 LOS Convention provides the leading example in Article 206:

> When States have reasonable grounds for believing that planned activities under their jurisdiction or control may cause substantial pollution of, or significant and harmful changes to, the marine environment, they shall, as far as practicable, assess the potential effects of such activities on the marine environment . . .

The consideration of environmental impacts and assessment of those impacts when potentially significant is emerging as an international environmental obligation. Once again, this emerging obligation will likely be required only to the extent "practicable under the circumstances."

IV. APPLICATION OF INTERNATIONAL ENVIRONMENTAL LAW TO MILITARY OPERATIONS OTHER THAN WAR

Overview

In the post Cold War era, the world community, led by the major powers, has demonstrated an increasing willingness to respond to intra-State conflicts in order to protect human rights and alleviate suffering. This phenomenon can be attributed to the remission of the threat of global nuclear war, the increase in regional and intra-State conflicts resulting from the realignment of the Soviet Union, and the impact of global communications, in particular television.[59] Armed forces are often tasked with these missions, given the rapidity in which they can successfully respond. In general, these missions have been labeled military operations other than war. At the same time that the armed forces are being assigned to perform these missions in foreign States, there is growing environmental awareness. This environmental awareness is fueled by both a greater understanding of the environment and the growing threats to its quality, and by the impact of global communication. Thus, it is appropriate and valuable to explore the environmental principles which should and do apply to these operations.

Military Operations Other Than War Defined

Military operations other than war (MOOTW) is defined as the use of military capabilities across the range of military operations, short of war.[60] Missions will

include peace enforcement, peacekeeping, counterdrug operations, noncombatant evacuation operations and humanitarian assistance and disaster relief. The definition of MOOTW encompasses a very broad range of missions, from missions which will be conducted in a nonconsensual environment, where combat is likely, to missions occurring in a consensual environment with little or no risk of combat. These MOOTW missions will generally occur in a foreign jurisdiction. Current or recent examples of MOOTW involving U.S. forces include: humanitarian assistance efforts in Iraq, Bosnia, Somalia and Rwanda; the mission to re-establish democracy in Haiti; and, response to refugee flow from Cuba.

Environmental Concerns Which May Arise During MOOTW

The range of environmental concerns which may arise during MOOTW are as varied and broad as the missions assigned. Each operation will raise specific environmental issues based on type, size, location and existing environmental factors. Environmental concerns which have been raised during recent MOOTW include transportation and disposal of hazardous waste produced during the operation, disposal of solid waste and sewage produced as a result of the operation, oil spill response and cleanup, and potential impact on endangered species habitat.

What Does Existing International Environmental Law Require of States Involved in MOOTW?

At a minimum, States involved in a MOOTW must, to the extent practicable under the circumstances, not cause significant injury to the environment of another State or of areas beyond the limits of their national jurisdiction, notify affected States if significant environmental damage has or will potentially occur, and take precautionary measures when there is a substantial risk of significant environmental damage. As noted earlier, the terms "to the extent practicable" and "significant injury" are not defined, nor is the term "precautionary measures" developed.

States involved in combat operations must also operate within the constraints of the law of armed conflict. This means that a commander has an affirmative obligation to avoid unnecessary damage to the environment to the extent that it is practicable to do so consistent with mission accomplishment.

What Does Emerging International Environmental Law Suggest Should be Required of States Involved in MOOTW?

During the planning of a MOOTW, consideration and assessment, to the extent practicable, should be given to environmental impacts, and in particular, significant adverse impacts. Such integration of environmental considerations will serve to provide planners with the ability to weigh the value of the operation against adverse environmental impacts and provide alternatives and ways to

mitigate the adverse impacts. U.S. agencies and forces are already under an obligation to complete such assessments in accordance with EO 12114. The Joint Staff has proposed that an Annex addressing environmental considerations be included in operational plans developed under the Joint Operations Planning and Execution System. Appendix 1 to the Annex would include an environmental assessment.[61] It is not difficult to imagine the value, indeed the essential nature, of such an assessment. For example, including environmental considerations in the planning might result in location of a refugee camp away from an area of critical habitat or away from an area where water source contamination would be likely.

States undertaking a MOOTW, to the extent practicable, may also have a duty to consider the potential impacts of their actions on the preservation of endangered species and habitats. Direct coordination with the State where the operation is planned would be, perhaps, the most direct manner of considering the potential impacts of planned operations. As noted earlier, the World Conservation Union and the Worldwide Fund for Nature Red Data Books would also be sources of this information. This information would then be factored into the planning process. U.S. agencies and forces are already under a national obligation to protect endangered species in accordance with the ESA.

In addition to protecting endangered species and habitats to the extent practicable, States would have a duty to protect areas of natural heritage from adverse impacts related to their operations. Once again, the first step would be for the State to identify if any areas of natural heritage exist in the area of the operation. This would most likely be accomplished through coordination with the State involved or through the use of other international listings such as that associated with the World Cultural and Natural Heritage Convention.[62]

Finally, States involved in MOOTW would be under a general duty to protect and conserve the environment to the extent practicable under the circumstances. This affirmative obligation would go beyond the duty not to significantly damage the environment. For example, under the existing customary law of not causing significant damage to the environment, a State might be able to dispose of waste oil or solvent by dumping it on the ground; under the emerging duty to affirmatively protect the environment, such an action would be deemed inappropriate.

V. CONCLUSION

Existing international environmental law simply requires States to take necessary measures, to the extent practicable under the circumstances, to not cause significant damage to other States or to areas beyond national jurisdiction. In addition, the general principles of the law of armed conflict provide protection against unnecessary environmental damage during armed conflict.

The trend in international environmental law is towards the establishment of an affirmative obligation to protect and conserve the environment. In this regard, special consideration is given to the issues of endangered species and areas representing natural heritage. Along with this affirmative duty to protect is an obligation to consider environmental protection and conservation in planning and executing projects. Such obligations will continue to develop and are likely to apply to MOOTW to the extent practicable under the circumstances.

The further development and acceptance of the principle that environmental considerations should be included in national planning is an important step in the international acceptance of a duty to conserve and protect the environment. Planning will allow nations to consider environmental impacts, weigh alternatives, and make decisions which protect and conserve the environment to the extent practicable under the circumstances. It will encourage decisions and policies which balance competing interests, including the environment, and will contribute to the development of international norms relating to environmental protection.

It must be recognized that effective measures to protect and conserve the global environment will involve significant costs and policy trade offs. International legal norms designed to protect the environment, unless they are to be observed in the breach, must take into consideration economic, political and national security realities. A well considered, balanced and cost effective international environmental regime, however, could well serve important interests of the international community into the 21st Century.

The United States, in light of the National Environmental Policy Act, Executive Order 12114, the Endangered Species Act, and its global involvement, is a leading agent in the further development of these emerging principles.

Notes

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1. Stockholm Declaration on the Human Environment, U.N. Doc. A/Conf. 48/14/Rev.1 (1973) [hereinafter Stockholm Declaration].

2. Geneva Convention on Long-Range Transboundary Air Pollution, T.I.A.S. No. 10541 (1985) [hereinafter Geneva Convention on Air Pollution]; U.N. Convention on the Law of the Sea, 21 I.L.M. 1261 (1982) [hereinafter LOS Convention]; ASEAN Agreement on the Conservation of Nature and Natural Resources, *reprinted in* 15 Envt'l Pol. & L. 64 (1985) [hereinafter ASEAN Agreement on Conservation].

3. *Trail Smelter Case* (Can. v. U.S.) 3 U.N.R.I.A.A. 1911 (1941); *Corfu Channel Case* (U.K. v. Alb.) Merits, 1949 I.C.J. Rep. 4 [hereinafter *Corfu Channel Case*].

4. A.L.I. Restatement (Third) of the Foreign Relations Law of the United States §601 [hereinafter Restatement Third].

5. Restatement Third, *supra* n. 4.

6. Hague Convention Respecting the Laws and Customs of War on Land with Annex of Regulations, Oct. 18, 1907, 36 Stat. 2277 [hereinafter Hague Convention IV].

7. Restatement Third, *supra* n. 4, at Reporters' n. 4; *see also*, Vienna Convention on Early Notification of a Nuclear Accident, 25 I.L.M. 1370 (1986); ASEAN Agreement, *supra* n. 2; 1982 LOS Convention, *supra* n. 2; Geneva Convention

on Air Pollution, *supra* n. 2; *Lake Lanoux Arbitration*, 12 R. INT'L ARB. AWARDS 281 (1987); and, *Corfu Channel Case*, *supra*, n. 3.

8. Restatement Third, *supra* n. 4, at Reporters' n. 4; *see also*, LOS Convention, *supra* n. 2, at Art. 199; see also Report of the International Law Commission on the Work of its Forty-Second Session, May 1 -July 20, 1990, G.A.O.R. Supp. 10, A/45/10/(1990).

9. *Supra* n. 4, at §602.

10. *See*, McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, 6 Hague Y.B. Int'l L. 79 (1993); *but see*, Verwey, *Observations on the Legal Protection of the Environment in Times of International Armed Conflict*, 7 Hague Y.B. Int'l l. 35 (1994).

11. Hague Convention IV, *supra* n. 6.

12. *Id.*

13. Geneva Convention Relative to the Protection of Civilian Persons in Time of War, Aug. 12, 1949, 6 U.S.T. 3516 [hereinafter Geneva Convention IV].

14. Protocol I Additional to the 1949 Geneva Conventions Relating to the Protection of Victims of International Armed Conflicts, Dec. 12, 1977, 16 I.L.M. 1391 (1977).

15. Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III) of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to have Indiscriminate Effects, Apr. 10, 1981, 19 I.L.M. 1523 (1980).

16. *Id.*

17. KISS & SHELTON, INTERNATIONAL ENVIRONMENTAL LAW (1991) at 21-31.

18. Rio Declaration on Environment and Development, June 14, 1992, U.N. Doc. A/Conf. 151/5/Rev.1 (1992) [hereinafter Rio Declaration]; World Charter for Nature, 1982, U.N. Doc. A/37/51 (1982) [hereinafter World Charter for Nature]; Stockholm Declaration, *supra* n. 1.

19. Montreal Protocol on Substances that Deplete the Ozone Layer, 26 I.L.M. 1541 (1987); ASEAN Agreement, *supra* n. 2; UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, 27 U.S.T. 37 [hereafter UNESCO Convention]; 1982 LOS Convention, *supra* n. 2; Convention on the Conservation of European Wildlife and Natural Habitats (Bern), U.K.T.S. 56 (1982) [hereinafter Bern Convention on Conservation]; Geneva Convention on Air Pollution, *supra* n. 2; Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington) 993 U.N.T.S. 243 (1973) [hereinafter CITES]; Convention on Wetlands of International Importance (Ramsar), 996 U.N.T.S. 245 (1971) [hereinafter Ramsar Convention on Wetlands].

20. *Supra* n. 17.

21. National Environmental Policy Act, 42 U.S.C. §4321 (1990).

22. Single European Act, E.C. 12 (1986), 25 I.L.M. 506 (1986).

23. *See*, Desgagne, *Integrating Environmental Values into the European Convention on Human Rights*, 86 A.J.I.L. 263 (1995).

24. Stockholm Declaration, *supra* n. 1 at Principle 1.

25. U.N. Human Rights Commission, Res. 1990/41, Mar. 6, 1990.

26. Rio Declaration, *supra* n. 18.

27. Stockholm Declaration, *supra* n. 1.

28. *Id.*

29. World Charter for Nature, *supra* n. 18.

30. LOS Convention, *supra* n. 2.

31. *Supra* n. 17, at 166-168.

32. UNESCO Convention, *supra* n. 19; Convention on the Conservation of Migratory Species of Wild Animals (Bonn), 19 I.L.M. 15 (1980) [hereinafter Bonn Convention on Conservation]; Ramsar Convention on Wetlands, *supra* n. 19.

33. Bern Convention on Conservation, *supra* n. 19.

34. ASEAN Agreement on Conservation, *supra* n. 2.

35. African Convention on the Conservation of Nature and Natural Resources (Algiers), 68 Int'l Envt'l L. 968 (1969) [hereinafter African Convention on Conservation].

36. *Supra* n. 17 at 239-304.

37. Endangered Species Act, 16 U.S.C. §1531.

38. *See*, *Defenders of Wildlife v. Lujan*, 911 F. 2d 117 (8th Cir. 1990); *see also*, Joy, *A Tennessee Snail Darter at Grafenwoehr? The Application of the Endangered Species Act to Military Actions Abroad*, Army Lawyer 23 (December 1991).

39. *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 184 (1978).

40. Stockholm Declaration, *supra* n. 1, at Principle 1.

41. World Charter for Nature, *supra* n. 18, at Principle 3.

42. CITES, *supra* n. 19.

43. Ramsar Convention on Wetlands, *supra* n. 19.

44. *E.g.*, Protocol on the Conservation of Common Natural Resources (Khartoum), Int'l Envt'l L. 982:10.

45. ASEAN Agreement, *supra* n. 2.

46. Convention for the Conservation and Management of Vicuna (Lima), Int'l Envtl L. 979:94; Agreement on the Conservation of Polar Bears (Oslo), 27 U.S.T.S. 3918 (1973); Convention for the Regulation of Whaling, 155 L.N.T.S. 349 (1931); Interim Convention on Conservation of North Pacific Fur Seals (Washington), 314 U.N.T.S. 105 (1911).

47. *Id.*

48. Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, May 14, 1954, [hereinafter Hague Convention on Cultural Property].

49. UNESCO Convention, *supra* n. 19.

50. ASEAN Agreement, *supra* n. 2; Bern Convention on Conservation, *supra* n. 19; Ramsar Convention on Wetlands, *supra* n. 19; African Convention on Conservation, *supra* n. 35.

51. Hague Convention on Cultural Property, *supra* n. 48.

52. Oxman, *Environmental Warfare (Environmental Terrorism During Wartime and Rules of War)*, 32 O.D.I.L. 1991.

53. NEPA, 42 U.S.C. §4321.

54. *Environmental Defense Fund Inc. v. Massey*, CA DC No. 91-5278, Jan. 29, 1993.

55. O.E.C.D. Declaration on Environmental Policy (1974).

56. U.N.E.P. Principles of Conduct in the Field of the Environment for the Guidance of States in the Conservation and Harmonious Utilization of Natural Resources Shared by Two or More States, 17 I.L.M. 1097 (1978).

57. World Bank Operational Directive OD 4.0, Oct. 1989.

58. Convention Relating to the Status of the River Gambia, Natural Resources Water Sources, No. 134 ST/ES17/141 (1989); ASEAN Agreement, *supra* n. 2; 1982 LOS Convention, *supra* n. 2; Geneva Convention on Air Pollution, *supra* n. 19.

59. RADM William D. Center, USN, address at the Smithsonian Institution (May 18, 1995).

60. U.S. Department of Defense, Chairman Joint Chiefs of Staff Instruction 3110.01, Joint Strategic Capabilities Plan FY 96.

61. U.S. Department of Defense, Chairman Joint Chiefs of Staff Memorandum 3122.03, Joint Operation Planning Execution System (U), Annex L, Environmental Considerations (Draft, June 13, 1995).

62. UNESCO Convention, *supra* n. 19.

Chapter XVIII

Environmental Aspects of Non-international Conflicts: The Experience in Former Yugoslavia

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The most important example of the problems relating to the protection of the environment relative to non-international conflicts in today's world is the experience of the ongoing conflict in former-Yugoslavia. This conflict has dominated the news for the past five years, ever since the beginning of the breakup of the former State of Yugoslavia. It has riveted the attention of the United Nations, of NATO, and of other great, or not so great, powers remaining after the breakup of the Soviet Empire. Thousands of people have died in the conflict, more thousands have been uprooted from their homes. Terrible atrocities have occurred, the like of which have been unknown in Europe since the end of the Second World War. And, it can be said without hesitation, there has been a profound effect on the environment. The extent of this is not known and will probably not be known until long after the conflict is finished. But, the fact that so many military forces have been involved, that battles have been fought by irregular forces without the discipline of conventional armies, that whole populations have been moved in the form of so called "ethnic cleansing," that so many atrocities have occurred and, on the other hand, that so many peacekeeping forces have also been involved in trying to control the conflict could not help but have a profound effect upon the environment of the area where the conflict is taking place.

Before a discussion of the environmental issues, it is necessary to examine the type of conflict involved. The conflict is a struggle for the control of the territory of a State, Yugoslavia, which disintegrated after the end of the Cold War. This struggle has resulted in the birth of several new nations - Slovenia, Croatia, Serbia (or the Yugoslav Republic), and Macedonia. The birth of these new nations have taken place within the framework of the conflict of fighting between, at first, the Yugoslav (or Serbian) Army with Slovenia, and then with Croatia. The latter is a conflict which is still not finished. Most importantly, the fighting has expanded with great ferocity in Bosnia-Herzegovina where the Bosnian government is trying to create a State which is being bitterly disputed by the Serbs and by the Croatians living in Bosnia, and by the Bosnian Muslims who support the new State. The United Nations has intervened in what has become the most extensive

peacekeeping mission in history and has sent thousands of peacekeepers who are trying vainly to moderate the conflict and to protect the extensive humanitarian relief operations being conducted for the benefit of the effected population. It has issued one decree after another, calling upon the parties to stop the fighting and to respect the humanitarian efforts, and creating protected or safe areas.[1]

The peacekeepers have been involved in the fighting in an unprecedented way, being forced to respond in self-defense, to threaten the use of force to accomplish their mission, and have even most recently been held as hostages by both sides to the conflict. This has led to the debate over whether the "peacekeeping" mission should be expanded to a "peacemaking" mission.[2] It has involved the use of NATO forces to support the peacekeepers and to try to protect them. All of the above raises the question of whether this is really a non-international conflict.[3] It could quickly develop into an international conflict, but for the moment the great nations have stayed out of the fighting and have limited their action to support of the peacekeepers, and when they intervene it is clearly stated to be in support of U.N. peacekeeping resolutions. It is significant to note that this is a type of conflict which seems to be part of the new state of world order (or disorder), with active U.N. intervention on an unprecedented scale. It is also significant that this may be the wave of the future, and that the U.N. or other bodies such as NATO will intervene in peacekeeping or peacemaking actions where the regular rules of international conflicts may not be applied. Even with the intervention of outside States, the peacekeeping nature of the conflict places it firmly in the category of non-international conflicts, or what is also being called here "military operations other than war."[4]

The second point which should be considered before proceeding further is to look quickly at the numerous and complex nature of actions taken by the U.N. and nations involved in the conflict.[5] First of all, there is the U.N. peacekeeping effort. The U.N. originally intervened to keep apart the Croatians and the Serbians, and set up the protected areas within Croatia, which were until recently controlled by the local Serbs. It then intervened to protect humanitarian relief efforts within Bosnia. NATO and other individual nations intervened based upon U.N. resolutions to enforce an embargo in the form of the ongoing naval operation known as Sharp Guard. Then NATO also intervened in the air action known as Operation Deny Flight, which enforces a no-fly zone over Bosnia and which intervenes upon call to protect U.N. forces. There also is the separate U.S. operation known as Provide Promise, which operates an air bridge to Sarajevo and has dropped thousands of tons of supplies to besieged areas. This relief effort is not only U.S. supported, but other nations have joined in, and the air relief of Sarajevo has now surpassed the length of the Berlin airlift. Other planning has been ongoing to enforce a peace plan, to conduct a withdrawal of the U.N. forces, or to conduct other more specific evacuation or support missions, and most

recently to respond to developments such as the fall of the safe areas of Srebrenica and Zepa and the threat to Gorozda and Bihac.

Why all of this is important here is because it is the framework within which measures to protect the environment during the conflict have been, or perhaps should have been, taken. We can ask to what extent the U.N. and other nations should intervene to protect the environment during a bitter non-international conflict. What rules apply to the forces which are acting as peacekeepers? What environmental problems do they face, and how practically can they regulate their actions to comply with international standards to protect the environment? Due to the fact that the U.N. and the participating nations have been concentrating on the basic issue of trying to bring peace to the region and to aid the local population and the refugees, it should be admitted that the environment has not been the main issue with which they have been concerned. However, it is an issue which has not been neglected by the peacekeepers because, as will be indicated, the international rules of law have been recognized, and the U.N. and NATO participants have included in their plans and the rules governing those plans that international law will be observed. What is proposed in this paper is to look at how the rules have been recognized, whether and to what extent they have been applied, and what we can learn from this experience.

First, has the environment been affected? There is not here the case of a deliberate action to do something to alter the environment, such as the decision by Iraq to set fire to the oil wells in Kuwait. But, there has been such intense fighting throughout Bosnia that the destruction of towns, farms, and countryside is inevitable. Some of it is caused by random shelling, and also by the deliberate effort to force populations out of areas which one side or the other wishes to claim as its own. Since the fighting is so desperate and the forces for much part nonprofessional, control over what individuals or individual units do is sometimes minimal. On the other hand, even the peacekeepers affect the environment by the very scale of their operations which include building camps, continuously moving large convoys over a rudimentary road system, and trying to keep all of this supplied by land, sea, and air. There is also the embargo operation ongoing in the Adriatic which involves an unprecedented number of ships from many different nations, operating closely and continuously in a limited area of sea. This raises the problems of oil spills and discharges from the ships and other mishaps relative to naval operations. Lastly, there is also the air operation which could quickly affect the environment if not carefully controlled. The bombing of targets, and even airdropping supplies, may damage the environment. Air operations might involve the carrying of hazardous cargoes, and there is always the possibility of pollution involving airports and facilities.

This paper addresses the problem by looking at the practical ways the participating forces have endeavored to recognize and to follow the environmental

rules. For all of the operations mentioned, from the U.N. peacekeeping effort to the naval embargo and the enforcement of the no-fly zone, there are operations plans and rules of engagement.[6] These are drawn up for the particular mission, such as the peacekeeping effort in Bosnia by the U.N., the NATO embargo operation in the Adriatic, or the air operation which enforces the no-fly zone or comes to the aid of the peacekeepers. The operation plans describe the mission and how it is to be accomplished. They spell out the commander's intent, and set the rules which will govern the operation. They have a whole series of annexes, from personnel to logistics, but what is most important here is that there will be a Rules of Engagement Annex to set out rules for the use of force, and a Legal Annex to address legal issues involved with the operation. These plans are reviewed by attorneys working on the staff of the commanders to assure that they properly conform with international and national laws and regulations. It is significant that there are legal advisers serving with the U.N., with NATO, and with national military units.

From my own experience as Allied Forces Southern Europe (AFSOUTH) Legal Advisor, I can assure that each of these plans, whether it is the U.N. plan for peacekeeping or the NATO plans for the naval or air operations mentioned above, or the U.S. plans which govern U.S. forces, recognize the obligation to conform to international law. This includes the laws governing armed conflict and would also include both the specific and customary rules in regard to the protection of the environment. Operation plans are further developed by specific national rules on how operations are carried out. This would include rules applying to the precautions taken by naval ships not to discharge pollutants into the seas. In the air, this would include rules relating to the transportation of hazardous cargoes. On land, they would include rules on the handling of petroleum products and the prevention of spills. It would also include the rules applying to cleanup if there are accidents. How well nations will carry out their obligations in this regard depends on how well their environmental programs are developed. The U.S., for example, has a very sophisticated environmental program for its armed forces, carries out very detailed studies on how its military operations affect the environment in overseas locations, and determines to what extent they comply with local environmental regulations.[7]

As mentioned above, operations plans include rules of engagement which govern the conduct of the military forces during the operations.[8] These will also recognize the obligation to be in conformity with international law, specifically those governing armed conflict. They will set limits on the use of fire power, what are legitimate targets, and who can authorize firing upon targets. In this regard targets must be legitimate military objectives. The civilian population, and civilian facilities, or the countryside, would not be a target unless the civilians take up arms and become combatants, or the civilian facilities were put to military use. Limits

to assure that this is understood by both commanders and soldiers are part of every set of rules of engagement. The rules of engagement will also limit the weapons which may be used. Chemical weapons may be forbidden or limited to certain types, such as riot control agents, for use only in certain limited circumstances. Specific rules are established for each part of the operation, so that there are land, air and sea rules of engagement, each addressing the particular problems associated with that part of the operation. While not all these rules relate directly to the environment, they are important since they limit the use of force which may affect the environment.

It is important to note both the differences and the similarities between the U.N., and the NATO or national rules of engagement. The U.N. rules basically are peacekeeping rules, that is, the use of force is normally only allowed in self-defense. Peacekeepers are supposed to withdraw from conflict if they are confronted with it. However, the NATO rules and national rules generally allow the use of force to accomplish the mission, not only in self-defense. This has led to long debates over whether the U.N. rules should be expanded, or how the NATO rules should be limited.[9] In any case, even the NATO rules which are being planned for possible NATO participation are designed only to use force for specific missions such as enforcement of the embargo, the no-fly zone, evacuations, delivery of aid, or protection of peacekeepers. The most recent use of force by NATO has been the action taken in response to the Bosnian-Serb attack upon the Sarajevo market which killed and wounded numerous people. NATO acted to force the Bosnian Serbs to respect Sarajevo as a safe area.[10] The U.N. rules may, on the other hand, have been expanded for the U.N. Rapid Reaction Force which is being assigned new missions and needs more authority to use force to accomplish these missions. In either case, for NATO or for the U.N. the rules are limited, since the mission is limited. This is significant for the protection of the environment because if the mission is limited, the effect that the use of force could have on the environment is also limited.

At this point, it is necessary to ask what are the specific rules which apply in regard to rules of engagement and the duty to protect the environment in non-international conflicts.[11] Most of the specific provisions on environmental rules in armed conflict are found in the Protocols to the Geneva Conventions.[12] However, it is relevant here that Additional Protocol II, relative to non-international conflicts, does not have the particular provisions relating to the environment that are found in Additional Protocol I. Missing from Additional Protocol II is the basic rule in Article 35[13] that it is prohibited to employ methods or means of warfare which are intended or may be expected to cause "widespread, longterm and severe damage to the natural environment." Also missing is Article 55[14] which states that care must be taken in warfare to protect the natural environment against "widespread, long-term and severe damage." This article

prohibits the use of methods or means of warfare intended or which may be expected to cause such damage to the natural environment. Also attacks against the natural environment by means of reprisals are prohibited. Additional Protocol II, on the other hand, sets out only fundamental guarantees. There are provisions forbidding acts directed against the civilian population, such as prohibitions against the taking of hostages, acts of terrorism, collective punishment, forced movement of populations, and pillage but no specific provisions on the environment. The only provisions which might have some relevance to the environment are Articles 14 and 15.[15] Article 14 protects objects indispensable to the survival of the civilian population. This article protects agricultural areas, crops, livestock, drinking water installations, and irrigation works. Article 15 protects works and installations containing dangerous forces.

In general, Additional Protocol II sets up only minimum guarantees, but these rules were designed for irregular forces or for regular forces fighting irregular forces inside their own country.[16] This does not mean that military forces participating in peacekeeping operations should not observe the more extensive guarantees provided for in Additional Protocol I, especially in a conflict such as the one ongoing in former-Yugoslavia, which is so close to becoming an international conflict, and especially by United Nations forces and other nations representing the world community. In fact, the rules of engagement being used by the peacekeeping forces in former-Yugoslavia and the rules proposed for NATO forces acting in support of the U.N. do not make a distinction between international and non-international conflicts. While not going into specific provisions of these rules, I note that the more general provisions of Additional Protocol I are a basic underlying consideration in the relevant rules of engagement. Examples include the basic rule in Article 35[17] that the right to chose methods or means of warfare is not unlimited. There is also Article 48[18] providing the duty to distinguish between the civilian population and combatants, and between civilian objects and military objectives. There are also Article 51,[19] which provides against indiscriminate attacks, and Article 57[20] in regard to precautions to be taken in planning attacks. And, finally, there is Article 82[21] which provides a requirement for the provision and use of legal advisers. All are cited in Hans Peter Gasser's recent article which suggests the publication of "Guidelines for military manuals and instructions for the protection of the environment" for military forces involved in armed conflict.[22]

Aside from the Additional Protocols, the other document which is basic to the protection of the environment is the 1977 Environmental Modification Convention (ENMOD),[23] which contains language similar to that found in Additional Protocol I. The ENMOD Convention prohibits environmental modification "techniques" designed to result in widespread, longlasting and severe effects on the environment.[24] The ENMOD agreement only applies to

signatory powers. And it is extremely limited in coverage since it forbids only what might be referred to as a "manipulation" of the environment, a deliberate undertaking to make longlasting or permanent changes. What is interesting to note here it that it sets out a general principle which should be recognized under all circumstances. There is not one rule for international conflicts and another for non-international conflicts. It would also just as well apply to operations in time of peace. While it may not be very practical because of its limitations, and it certainly will not find application in the ongoing conflict in former-Yugoslavia, it stands for the fact that there are general environmental rules which would apply to this conflict however it is classified, and there is good reason for peacekeeping forces to observe it and other provisions relating to the environment.

Lastly, there is the 1980 Conventional Weapons Convention with its Protocol II on mines, booby traps, and other devices, and Protocol III on incendiary weapons which, in addition to limiting use of particular weapons, prohibits making forests and plant cover objects of attack except when used for military purposes.[25]

The rules of engagement of the peacekeeping forces and the rules planned for other forces do utilize and apply these general principles, and the lack of specificity in Additional Protocol II does not mean that they are disregarded because this may be a non-international conflict. I suggest that any peacekeeping force will adopt and follow such provisions of Additional Protocol I no matter how we classify the conflict. They would also apply to military operations other than war. It is most significant that the forces involved as peacekeepers are regular military forces and are part of an international peacekeeping mission. They should be held to a higher standard. There may be some exceptions since, for example, it may not be practical to apply all of the provisions of Additional Protocol I or of the 1949 Geneva Conventions. Specifically, particular provisions of the Geneva Convention on Prisoners of War[26] may not be applicable. The taking of prisoners is not contemplated by peacekeepers. Peacekeepers will not operate POW camps. However, the general provisions in regard to distinguishing targets, taking precautions in planning, and the use of legal advisers are all applicable. Again, they are important here because they will serve to protect the environment if they are properly utilized. Deliberate destruction of the environment without military need would be forbidden in all cases. The destruction of the environment of a widespread, long-term or severe nature should always be forbidden.

As indicated above, operations plans discuss areas other than rules of engagement. As mentioned earlier, there is a need to address special problems, such as those involving the use of ships at sea. It is generally expected of the commanders of military vessels that they will recognize and follow the international rules of the sea. In this regard, the 1982 Law of the Sea Convention clearly provides that States have the obligation to protect and preserve the

environment (Article 192).[27] They shall also take measures to prevent, control and reduce pollution of the marine environment (Article 194).[28] This includes the control of the release of pollutants from vessels, dumping wastes, prevention of accidents, and preventing pollution from installations. This obligation is observed by NATO nations involved in Operation Sharp Guard. In regard to air operations, an important concern would be the transportation of hazardous materials. While not as extensive as the Law of the Sea Convention, the Basel Convention on Transboundary Movement of Hazardous Wastes and their Disposal provides rules in this regard.[29] Again, military commanders would be obliged to observe international legal rules. In such extensive operations as Deny Flight or Provide Promise there are borders to be crossed, permissions to be granted in obtaining flight clearances, and precautions to be taken in transporting arms and munitions which may certainly be considered as hazardous. Accidents must be prevented, and installations where the materials are stored kept safe. All of these are factors which need to be considered in planning operations.

There is another area which needs to be addressed, and that is the responsibility for environmental damages. It has already been mentioned that each operations plan will contain a Legal Annex. This Annex will normally contain the rules in regard to the investigation and payment of claims.[30] In regard to peacekeeping operations, the exception which normally applies to combat operations, that nations are not obliged to pay for damage caused, should not be applicable.[31] This reasonably applies to the situation where opposing sides are fighting each other and will not reimburse each other for the damage caused in the fighting. In peacekeeping operations the normal claim is that of a third party injured during an operation conducted during conditions of general peace. The U.N. has a extensive claims program and has regularly been paying claims for damages caused during its operations. These range from the typical motor vehicle accident to damage to roads or farms, and therefore could be considered as environmental damage. The U.N. Legal Advisor at Zagreb informed me that they would not pay claims from actions taken properly in the line of duty—they would expect this expense to be assumed by the host country which benefits from the protection of the peacekeeping forces—but they would pay claims for damages caused by negligence or improper acts.[32] Negligence claims would include liability for such things as oil spills or other pollution damage, and there has been at least one case of a environmental cleanup claim being paid.[33]

Legal Annexes should provide how claims are to be paid and investigated. It is necessary that incidents be reported, and that an investigation be made to determine what the damages were, who caused them, and if they can be verified. There is also the question of who is liable. If it is a U.N. operation, will the U.N. be liable even if the particular damage was caused by a national unit acting in support of the U.N. forces? If damages were caused by forces under U.N. command,

there should be no question that the U.N. will accept responsibility, but it may refer claims back to national units if they were operating under national command even if in support of the U.N. The U.N. has referred claims to Joint Task Force Provide Promise as a U.S. operation and to AFSOUTH if NATO forces were involved. This, of course, may result in the fact that there will be differing policies on the payment of claims. In regard to claims referred to NATO, NATO may in turn refer them to its member States if they were responsible for the damages. There is a NATO claims formula set out in the NATO Status of Forces Agreement (NATO SOFA),[34] but the NATO SOFA may not be applicable to situations in former-Yugoslavia since this is an "out of area operation." Former-Yugoslavia is an area not within the scope of the NATO agreement.

In any event, the issue of recognizing claims responsibility is extremely important. If there is a responsibility to pay claims, then there is also reason to try to prevent claims. The U.N., NATO or national bodies will be concerned to limit their liability, and there will be an effort to prevent the causes of claims. Precautions will be taken against accidents. There will be controls in regard to the handling of pollutants and cleaning up should accidents occur. This becomes difficult in the international setting, since, for example, the U.N. must try to set up controls and standards for a very diverse group of soldiers and units which make up the U.N. forces. It is easier within NATO, since NATO units are accustomed to working together, and there are longstanding and practiced rules applying to NATO units. It is easier still within national units since their rules apply only to their own soldiers and their own operations. But, the bottom line is that if liability is anticipated, countries will do what they can to protect themselves from liability because they are responsible to pay for the damages which they cause.

A third area of discussion in regard to operations in former-Yugoslavia and the environment concerns agreements with the host nation and also agreements between the participating parties. On one hand, there is the U.N. Model SOFA[35] which has been signed between the U.N. and the Government of Bosnia-Herzegovina, and more recently a similar agreement has also been signed with Croatia. This agreement provides in Article 6[36] that the U.N. forces will respect the law of the receiving State. This would include appropriate environmental laws. The U.N. agreement does not have claims provisions, but as already noted, the U.N. has an extensive claims program and will generally pay claims where there is fault involved. NATO forces supporting the peacekeeping mission would also be covered by the U.N. agreement when attached to U.N. forces. In the case that NATO intervened but not as part of the U.N. force, it would also have to have a SOFA. If modeled on the NATO SOFA, this agreement would also provide for the respect of local law (Article II).[37] It would have claims provisions (Article VIII) which would set up a formula by which the contracting parties waive claims against each other, but agree to share the payment of third party claims.[38] Of course, the

revelant agreement could be modeled on the U.N. agreement rather than the NATO model, or a different agreement entirely could be drafted. Another provision in the Model SOFA provides for immunity for military personnel from criminal or civil jurisdiction, leaving it to the international organization to be responsible for the acts of its personnel.[39] The NATO SOFA provides for partial immunity, giving immunity for official acts, but allowing the most interested party to exercise jurisdiction for nonofficial acts.[40] The significance here is that it is the State itself, rather than its personnel, which would have responsibility for most environmental offenses.

The other type of agreement to be considered is one between the participating parties, such as a terms of reference agreement for forces participating in a U.N. operation.[41] Again, in such an agreement, it would be appropriate for the forces to agree that they would respect the local laws of the country where the operation is taking place. The responsibility of the parties between each other could be defined. For example, will the U.N. or NATO pay a claim which is derived from a U.N. operation, but where the specific damage has been caused by a member or a unit of the NATO force? Not a great deal of thought has been given as to how either of these two types of agreements (SOFA's or Terms of Reference) might relate to the environment. We could speculate what types of provisions should be added. The Model SOFA might, in its text, provide with particularity provisions in regard to the observance of environmental rules. The NATO SOFA, written in 1951, does not refer specifically to environmental matters.[42] Later NATO agreements, such as the recently signed Supplementary Agreement with Germany, do refer to environmental matters, stipulating a specific duty to comply with environmental laws and regulations.[43] It would be possible to provide specifically for the respect for environmental laws in both peacekeeping SOFA's and agreements between peacekeeping forces. However, there must be caution here, because compliance with all environmental regulations, especially if a country where the actions were taking place had a sophisticated environmental protection system, might become burdensome and interfere with the missions to be accomplished. Exceptions to the rules might be necessary.

These are only a few of the issues which have occurred, but there are generalizations from this discussion which can be made in regard to operations in the former-Republic of Yugoslavia and protection of the environment. First and most generally, environmental rules must apply to non-international as well as international conflicts. While the rules for non-international conflicts may not be so specific as for international conflicts, there should be a general rule in regard to all conflicts, that the environment is not to be deliberately damaged. It should also apply to all operations other than war. Included in this general rule should be the specific rules in regard to selecting targets and limiting collateral damage. Other rules are also applicable, such as Article 57 in regard to precautions in the

attack.[44] This must be part of all military planning. There is also the rule in Article 82 which requires the use of legal advisers.[45] They must advise commanders and review the plans for military operations. Again, these are basic rules, and there is no reason they should not apply to non-international conflicts and military operations other than war as well as to international conflicts. Policy should dictate in such operations that all the general rules apply. The Additional Protocol II rules are minimum standards, and that does not mean participating forces should not apply a higher standard. It is not unreasonable that nations participating for peacekeeping purposes should apply the highest standards to their conduct.

Then there is a second generalization, in regard to the use of operations plans and rules of engagement. The plans and rules must recognize the duty to respect the law, both international and local laws, and these should include those which relate to the protection of the environment. The Rules of Engagement Annex is key because it sets out specific rules in regard to the use of force, and the Legal Annex because it sets out the rules which apply generally even when force is not being used. Aside from general international rules, I cited as example the 1982 Law of the Sea Convention[46] and the Basel Convention.[47] The Legal Annex also establishes rules in regard to such things as the payment of claims. And the recognition of the obligation to pay claims serves the important function of deterring acts which damage the environment because the parties will prevent those things which will cost them money. The third generalization concerns the use of status of forces agreements and agreements between participating forces, both of which should recognize the obligations to respect the law, and stipulate particular arrangements for such things as the investigation and reimbursement for claims. These agreements could also refer specifically to environmental laws and regulations. They could work out the details in regard to what extent local procedures are to be followed, such as applying for permits or following particular environmental rules.

While the above generalizations may seem simple, they do establish a reasonable basis to observe environmental law in non-international conflicts and in military operations other than war. I note that all of the comments made in this paper have been drawn from my own experience and that of other legal advisers during the conflict in former-Yugoslavia. The suggested practices in operations plans and rules of engagement have been used by the U.N., by NATO, and by individual nations involved. The comments in regard to SOFA's and TOR's are also drawn from actual or proposed agreements. This experience has been used in operations taking place on a vast scale so that the lessons learned should be recognized as precedent for the future. Even if the intent of the operations, to preserve the peace and come to the aid of those suffering, fail, the experience gained in conducting these operations will remain. So whatever the outcome of the present experience in former-Yugoslavia, there may be some good which comes

from it in that we are being forced to address difficult situations which might have even wider consequences in conflicts in the future. It particularly applies to the environment. The opportunity exists to develop rules for these conflicts, and to recognize responsibilities for the future. Whatever is being developed is likely to be practical since it is being developed for actual ongoing conflicts. Real problems are being addressed, and it is hoped that we are left with some workable rules and experience which are valuable for the future.

Notes

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1. While it is beyond the scope of this paper to enumerate the many U.N. actions underlying international intervention in former-Yugoslavia, it is helpful to note that U.N. intervention began in 1991 with Resolution 713 which implemented a general embargo on all deliveries of weapons and military equipment to Yugoslavia. In 1992, Resolution 743 established United Nations Protection Force (UNPROFOR). Also in 1992, Resolution 781 banned military flights in the airspace over Bosnia and Herzegovina. The U.N. created safe areas by Resolution 824 in 1993, and also in 1993 authorized the use of force by Resolution 836 to protect safe areas.

2. While both these terms are in general use, the correct terminology is "peacekeeping", which is authorized under Chapter VI of the U.N. Charter, and "peace enforcement", which is authorized under Chapter VII. The Charter of the United Nations, 26 June 1945; 59 Stat. 1931; T.S. No. 993; 3 Bevans 1193.

3. For a discussion of the concept of non-international conflicts, *see*: Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949, at 1319 (International Committee of the Red Cross 1987).

4. Note that the concept of non-international conflict is different from that of military operations other than war (MOOTW), which might include peacekeeping, rescue operations, humanitarian aid, or other nonhostile actions. In both cases, there is a key issue whether all of the rules in regard to international conflicts should be applied. However, non-international conflict is still a conflict, and MOOTW may or may not involve hostile actions. So there is a basic difference as well.

5. For a good outline of the U.N. actions in former-Yugoslavia, *see* The United Nations and the Situation in Former Yugoslavia, United Nations Department of Public Information, Reference Paper (15 March 1994).

6. An excellent discussion of legal issues involving operational planning is found in U.S.Department of the Army, Operational Law Handbook (1994).

7. *See* U.S. Department of Defense DoD Directive 6050.16, DoD Policy for Establishing and Implementing Environmental Standards at Overseas Installations (1991).

8. For a discussion and examples of rules of engagement, *see* Operational Law Handbook, *supra* n. 6 at TAB H.

9. The latest development was the decision by Secretary General Boutros Boutros Ghali to delegate the decision to call in NATO air support to the military commanders after NATO decided to threaten the use of force against the Serbs if other safe areas were attacked after the fall of Srebrenica and Zepa. Whitney, *UN Yields Air-Strike Control to the Military*, Int'l Herald Trib., July 27, 1995 at 1.

10. The decision to use force was taken by the AFSOUTH Commander and the U.N. Commander pursuant to the agreement worked out between NATO and the U.N. *Supra* n. 9.

11. A good discussion of the law in this area is found *in*: Diederich, *Law of War and Ecology - A Proposal for a Workable Approach to Protecting the Environment through the Law of War*, 136 Mil. L. Rev. 137 (Spring 1992). *See also* Almond, *War, Weapons and the Attacks on the Environment*, Revue de Droit Militaire et de Droit de la Guerre, XXXI, 1-2-3-4 (1992), at 329. And most recently; Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 A.J.I.L. 637 (1995).

12. Protocol I Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims in International Armed Conflicts, *opened for signature* Dec. 12 1977, 1125 U.N.T.S. 3, *reprinted in* 16 I.L.M. 1391 (1977), [hereinafter Additional Protocol I]. The United States has signed but not ratified Protocol I. And, Protocol II Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Conflicts, *opened for signature* Dec. 12, 1977, 1125 U.N.T.S. 609, *reprinted in* 16 I.L.M. 1442 (1977), [hereinafter Additional Protocol II]. Also, the U.S. has signed but not ratified Additional Protocol II. However, the President recommended that the Senate give its advice and consent for Protocol II but not for Protocol I. The recommendation as to Additional Protocol I is now under reconsideration by the Clinton Administration. *See*, Meron, Editorial Comment, *The Time Has Come for the United States to Ratify Geneva Protocol I*, 88 A.J.I.L. at 678 (1994).

13. Article 35, Additional Protocol I, *supra* n. 12.

14. Article 55, Additional Protocol I, *supra* n. 12.

15. *See* Arts. 14 and 15, Additional Protocol II, *supra* n. 12.

16. *See* Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949, *supra* n. 3, in *General Introduction to the Commentary on Protocol II*, at 1319 and following.

17. Art. 35, Additional Protocol I, *supra* n. 12.

18. Art. 48, Additional Protocol I, *supra* n. 12.

19. Art. 51, Additional Protocol I, *supra* n. 12.

20. Art. 57, Additional Protocol I, *supra* n. 12.

21. Art. 82, Additional Protocol I, *supra* n. 12.

22. *See* Gasser, *supra* n. 11, at 641.

23. Convention of the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333; T.I.A.S. 9614 [hereinafter ENMOD].

24. Art. I, ENMOD, *supra* n. 23.

25. Convention on Prohibition or Restrictions on the Use of Certain Weapons Which May be Deemed to Be Excessively Injurious or to Have Indiscriminate Effect, *opened for signature* Apr. 10, 1981, *reprinted in* 19 I.L.M. 1524 (1980).

26. Geneva Convention Relative to the Treatment of Prisoners of War of 12 August 1949, 6 U.S.T. 3316; T.I.A.S. 3364; 75 U.N.T.S. 135.

27. United Nations Convention on the Law of the Sea, *opened for signature* Dec. 16, 19822, U.N. Doc. A/CONF. 62/122 (1982), *reprinted in* United Nations Official Text of the United Nations Convention on the Law of the Sea with Annexes and Index., U.N. Sales No. E83 v.5 (1983) [hereinafter LOS Convention]. *See* Oxman, *The Future of the United Nations Convention on the Law of the Sea*, 88 A.J.I.L. at 488 (1984).

28. *Id.*

29. Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal, Mar 22, 1989, U.N. Doc. UNEP/IG.80/3 (1989), *reprinted in* 28 I.L.M 657 (1989).

30. Operational Law Handbook, Annex Q of TAB F, *supra* n. 6.

31. It is nowhere stated in the law of armed conflict that damages caused are to be paid or not, but these are matters which are generally settled after a conflict has taken place.

32. The Legal Adviser of the U.N. presently working these issues is Gary F. Collins, a former U.S. Army Judge Advocate, with the United Nations Protection Force, UNPROFOR H.Q., Zagreb, Croatia. The opinion that the U.N. will not be liable for operational activities is stated in a legal memorandum from the Legal Division to the Office for Special Political Affairs: Interoffice Memorandum from Sirha Sasnayeke, Director General Legal Division to Hisako Shimura, Director for Special Political Affairs, SUBJECT: *Government Liability for damage caused by UNIFIL operational activities* (U.N. HQ, Dec. 5, 1989).

33. *Id.*

34. The NATO Claims Formula is found in Article VIII of the Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces, June 19, 1951, 4 U.S.T. 1792; T.I.A.S. 2846; 199 U.N.T.S. 67 [hereinafter NATO Status of Forces Agreement or NATO SOFA].

35. Draft Model Status of Forces Agreement between the United Nations and Host Countries. Agreements correspond to the terminology used in para. 11 of General Assembly Resolution 44/49 dated 8 Dec. 1989 [hereinafter U.N. SOFA], but will vary according to the type of peacekeeping operation concerned. *Printed in* SIEKMANN, NATIONAL CONTINGENTS IN UNITED NATIONS PEACE KEEPING FORCES (1991) at Annex II, 204-10. Also *found in* U.N. Res. A. 45/594 of Oct. 9, 1990.

36. *Id.*

37. NATO SOFA, Art. II, *supra* n. 34.

38. NATO SOFA, Art. VIII, *supra* n. 34.

39. U.N. SOFA, *supra* n. 35.

40. NATO SOFA, Art. VII, *supra* n. 34.

41. "Terms of Reference" (or TOR) made between the U.N. and participating nations, and they would spell out in detail the status of participants, command control, liability for costs, and other matters relating to the operation. *See* Draft Formula for Articles of Agreed Guidelines for U.N. Peacekeeping Operations, App 1, Agreed Guidelines for U.N. Peacekeeping Operations, *in* SIEKMANN, *supra* n. 35, at 197-99.

42. NATO SOFA, *supra* n. 34.

43. Agreement of 18 March 1993 to Amend the Agreement between the Parties to the North Atlantic Treaty regarding the Status of their Forces with respect to Foreign Forces Stationed in the Federal Republic of Germany, ratified by Germany, 28 Sep. 1994.

44. Additional Protocol I, *supra* n. 12.

45. *Id.*

46. LOS Convention, *supra* n. 27.

47. Basel Convention, *supra* n. 29.

Chapter XIX

Comment: The Existing Legal Framework: Protecting the Environment During Non-international Armed Conflict Operations Involving the Use of Force (*i.e.*, Military Operations Other Than War (MOOTW))

Dr. Raul E. Vinuesa*

In the context of non-international armed conflict operations there are different situations that I think are most important to consider in order to identify the applicable law concerning environmental protection.

First of all, we must distinguish between non-international armed conflict operations taking place with or without external intervention.

A traditional internal armed conflict, as defined by Article 1 of Additional Protocol II to the Geneva Conventions of 1949,[1] is one in which there is no participation of external armed forces. An internal armed conflict, to be classified as such, must involve a confrontation, with a certain level of intensity, of regular armed forces against insurgents or belligerents of that same country. If a certain level of intensity in the use of force is not present, Protocol II would not apply. In that case, Article 3 common to the four 1949 Geneva Conventions[2] would be operative.

In all those particular situations, the applicable law for the protection of the environment during an internal armed conflict will, in principle, be no other than domestic law.

In that context, it might be possible to assume that in a certain country there are no specific developments of internal law to regulate the protection of the environment during armed conflicts or, that the applicable law contains lacunae on that particular issue. It could also be assumed that basic principles of environmental law have not been enforced within that particular country or even made to be applicable during time of peace.

In those extreme situations, and on a residual basis, we could assume that an international customary rule expressing the duty of every State not to damage other States and/or areas beyond national jurisdiction, should apply.

In his paper, Rear Admiral Harlow clearly stated the present status of environmental law principles applicable to relations among States in time of peace. We do agree that the scope and reach of that set of principles determine the basic rules which regulate and restrict the use of force by a State within an internal armed conflict vis-à-vis third States.

After all, the relations between a State in which an internal armed conflict is taking place, and any other State, are governed by international law applicable during time of peace.

On the same line of thought, we also consider that insurgents or belligerents, that fight against regular armed forces of a State, are also obliged to observe that basic duty not to damage other States or areas beyond national jurisdiction.

Although Article 1 of Additional Protocol II establishes for all parties to the internal conflict the obligation to observe the laws prescribed by it, we should admit that this obligation not to damage the environment of other States is a customary obligation addressed to States, not to insurgents or belligerents in a non-international armed conflict.

The problem will remain; whose responsibility has been affected in cases where insurgent forces, having produced environmental damage to a third State or to an area beyond the national jurisdiction, are finally defeated?

In general terms, it could be accepted that the State in which territory an internal armed conflict has taken place would have a double obligation. First, not to use its forces in such a way that could affect third States' environmental interests, and, second, to impede such effects being produced by insurgents or belligerents engaged in an internal armed conflict.

A second situation that needs to be distinguished within internal armed conflicts is one in which there is an intervention, whether by direct or indirect involvement, of a third State. If such intervention, in one way or another, involves the use of force by third States, that will constitute the necessary condition for the internationalization of the conflict.

The environmental protection rules applicable in such a situation would be no other than the ones derived from international humanitarian law enforced during international or internationalized armed conflicts.

A second alternative related to non-international armed conflict operations where there is third party intervention, is related to peace-keeping operations authorized by international or regional organizations. In cases of peace-keeping operations performed within an internal armed conflict, there is a peculiar relationship of third parties to the conflict in which they intervene.

First of all, peace-keeping operations would not constitute a use of force that would cause the internationalization of the conflict *per se*. Peace-keepers are not intended to be involved in combat and it is supposed that they will not be. In that sense, there would be very few and extreme cases in which damage to the

environment could be justified on the basis of military necessity by peace-keeping forces.

The main issue here is that peace-keeping operations will qualify as operations other than war within an internal armed conflict in which both sides of the conflict will be performing acts of war. That particular situation leads us to consider the possibility of a mixed situation in which the applicable law will differ depending upon who is undertaking actions amounting to the use of force.

One general consideration about the applicable law in this particular situation might be that peace-keeping operations that are authorized by international organizations will internationalize the conflict. That would be to say that the mere intervention of peace-keepers within an internal armed conflict will generate new obligations on internal belligerents.

Although peace-keeping operations are a form of lawful international intervention, it does not follow from that presumption that international humanitarian law applicable to international or internationalized armed conflicts should apply.

It is clear that peace-keeping operations infringe on the principle of absolute sovereignty of States and, most obviously, its corollary, non-intervention in domestic affairs.

It is also clear that the obligations of peace-keepers, in performing operations other than war in relation to an internal armed conflict, are stricter than obligations of domestic or internal belligerents. In principle, both sides to the conflict are acting within the territory of one single State. They are in a certain way within "their own territory."

Colonel Burger, in his paper, clearly expressed the obligations of peace-keepers involved in an internal armed conflict that are derived either from conventional arrangements or from their own rules of engagement. It is important to realize that whether through treaty obligations or through internal imposition, armed forces participating in peace-keeping operations are bound to respect certain environmental premises in conducting their actions.

As suggested above, the question remains whether the mere presence of peace-keeping forces in an internal armed conflict will generate new obligations on belligerent parties to that internal conflict.

Those problems lead us to propose that, in protecting the environment during non-international armed conflict operations, we differentiate between those circumstances involving the use of force in military operations other than war (MOOTW) and those that do not.

Military operations other than war could be performed during non-international armed conflicts by peace-keeping forces, but that specific category of operations also has application outside non-international armed conflicts.

Military operations other than war will then include, a) peace-keeping operations and b) operations involving the use of force performed in compliance with international law in time of peace.

The situation in the former-Yugoslavia, commented on in Colonel Burger's paper, is not a clear example of non-international armed conflict operations, due to the actual and non-disputed international character of that conflict. But at the same time, peace-keeping operations in the former-Yugoslavia qualify as military operations other than war. This is one of the main reasons why we propose the formulation of a clear distinction between internal armed conflict and MOOTW situations as a basic prerequisite for the definition of the applicable law concerning environmental protection.

Governmental arrangements, as well as specific rules of engagement, would determine the proper framework within which to use force in compliance with environmental protection standards in or outside non-international armed conflicts. The main problem here is the unilateral character of the rules of engagement adopted by States in observance of domestic policies.

In reference to MOOTW performed in strict compliance with international law in time of peace, we should include, as another example, the force that an individual State is authorized to use in observing fisheries stocks conservation measures within its exclusive economic zone and beyond that zone on the adjacent high seas, in conformity with the 1982 United Nations Convention on the Law of the Sea[3] and the latest developments of the law incorporated into the U.N. Draft Convention on the conservation and management of straddling fish stocks and highly migratory fish stocks and other protected species.[4]

For all those situations involving MOOTW, the applicable law concerning the protection of the environment would be no other than international law standards. There is no doubt that international law will specifically be applied in areas beyond the national jurisdiction of the State performing MOOTW. But we also could argue that general principles of environmental protection law, as described in Rear Admiral Harlow's paper, also limit individual States in the conduct of MOOTW taking place within their own territory.

For all the above considerations, we are prompted to conclude that: MOOTW performed by a State within its own territory are governed, in respect to environmental protection, by its own domestic law, whatever the degree of development of that law might be. Obviously, there are two basic international limitations in performing those military operations. The first limitation, as we have already stated above, is derived from the duty not to damage other States and areas beyond national jurisdiction. The second limitation specifically relates to non-international armed conflicts of certain intensity.

For the latter situations, Additional Protocol II to the Geneva Conventions of 1949[5] should be applied. Parties involved in the use of force during

non-international armed conflicts are obliged to protect the environment as a collateral obligation to protect civilian resources necessary for the survival of the civilian population. (As mentioned in Rear Admiral Harlow's paper, Articles 14 and 15 of Additional Protocol II would apply here.)

Along the same line, MOOTW performed in third States' territories or in areas beyond national jurisdiction, will be governed, in relation to environmental protection issues, by international law standards.

I think that it would go too far to suggest, at the present time, that the law has created an environmental legal protection scheme binding upon all States during non-international armed conflict, when in peace time the same environment is subject to no protection or control.

When a State is acting within its own territory, the principle of non-intervention in the domestic affairs of other States would be a legal barrier for environmental protection claims, except when there is entitlement to damage reparations or entitlement to stop or prevent future damages produced, or expected to be produced, in third States' territories or in areas beyond national jurisdiction. Additional Protocol II to the 1949 Geneva Conventions does not protect the environment *per se*, but as a collateral effect from the protection of natural resources necessary for the survival of the civilian population.

Concerning the development of the law applicable to the protection of the environment during MOOTW performed either during non-international armed conflicts or in time of peace, we consider that emerging rules have been inferred from general and basic principles of international humanitarian law.

The protection of civilian property, as well as the limitations on means and methods of war—principles adopted by the Hague Conventions of 1899 and 1907[6]—have been the starting point for future developments inspired on a growing international conscience that interrelates rules regarding the selection of targets and restrictions on the production of collateral damage, with the protection of the environment as a manifestation of individual rights to preserve a tolerable human habitat for future generations.

This human rights element has strengthened internal as well as international political interests in preserving adequate environmental conditions as a common obligation of all States.

At the international level, the existence of recognized principles establishing an affirmative duty for all States to protect and conserve the environment is beyond question. There is also a generalized consensus on the obligation of States to observe adequate legal protection against unnecessary environmental damage during armed conflicts. As referred to by Rear Admiral Harlow, that obligation has been expressed as a duty upon States to take necessary measures, to the extent practicable under the circumstances, to not cause significant damage to other States or areas beyond national jurisdiction.

There is a strong commitment among academicians and politicians in different parts of the world to extend these international commitments to foster adequate legal protection of the environment to situations not necessarily reached within the framework of international law. Although we agree with the aims of such a proposition, we have to recognize that, in reference to MOOTW, that is just a manifestation of *lege ferenda*.

Even considering that all those efforts have already produced certain positive effects, we must recognize that at the present time international law has no specific rules to protect the environment in relation to military operations other than war or with respect to the use of force during a non-international armed conflict.

As an exception, actual practices of U.N. peace-keeping forces have contemplated environmental protection standards in performing MOOTW. But we should also recognize that those commitments are the direct consequence of either special international agreements or of rules of engagement defined and imposed at the national level.

Taking into account the recent experiences of NATO, the U.N., and individual States in the former-Yugoslavia, referred to in Colonel Burger's paper, it is important to identify new trends in the law which hopefully will inspire national legislatures to adopt common domestic standards on environmental protection when defining rules of engagements for MOOTW.

That recent experience allows us to conclude that adoption at the national level of appropriate rules of engagement will be a most appropriate way to implement and enforce developing international standards concerning environmental protection during MOOTW, either in non-international armed conflicts or when MOOTW are performed by States in time of peace.

Although those international trends towards environmental protection, as extensively commented on in the papers of Rear Admiral Harlow and Colonel Burger, are for most countries still in a very primitive stage, we may at least have some hope that through the generation of domestic awareness, certain approximation of *lege ferenda* to *lege lata* will be accomplished in the near future.

Notes

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1. Protocol II Additional to the Geneva Conventions Relative to the Protection of Victims of Non-international Armed Conflicts, 12 Dec 1977, *reprinted* in 6 I.L.M. 1442 (1977).

2. *I.e.*, Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, 12 Aug 1949, 6 U.S.T. 3114, T.I.A.S. 3362; Geneva Convention for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, 12 Aug 1949, 6 U.S.T. 3251, T.I.A.S. 3363; Geneva Convention Relative to the Treatment of Prisoners of War, 12 Aug 1949, 6 U.S.T. 3316, T.I.A.S. 3364; and Geneva Convention Relative to the Protection of Civilian Persons in Time of War, 12 Aug 1949, 6 U.S.T. 3516, T.I.A.S. 3365.

3. 1982 United Nations Convention on the Law of the Sea, U.N. Doc. A/CONF.62/122 (1982), *reprinted* in 21 I.L.M. 1261-1354 (1982).

4. *See* Articles 21 and 22, United Nations Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks, *Draft Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*, A/CONF.164/33, 23 Aug. 1994.

5. *Supra*, n. 1.

6. *E.g.*, Hague Convention No. IV, Respecting the Laws and Customs of War on Land, 18 Oct. 1907, 36 Stat. 2227, T.5. 539.

Chapter XX

Comment: Protection of the Environment During Non-international Armed Conflicts

Professor Theodor Meron*

I am most grateful to Captain Jack Grunawalt for inviting me to participate in this Symposium on the Protection of the Environment during Armed Conflict and other Military Operations. The organizers deserve special thanks for bringing together military and civilian experts on international environmental law and the law of war for a discussion of a most important, interesting and timely subject.

Meetings and dialogue of this kind between military and academic lawyers is something that I would like to see more often in the future; academics are often unaware of the important work that is done by military lawyers. The papers presented to our Panel by Admiral Robertson and Colonel Burger exemplify careful research and analysis. Both authors detail constructive, reflective and fresh approaches, which, in my experience, one often finds among military lawyers.

In assessing protection of the environment in non-international armed conflicts, one must keep in mind certain considerations. First, to be effective, protection of the environment must be continuous and ongoing. It cannot be contingent upon whether there is a state of peace, international war or civil war. It is encouraging that there is an emerging consensus that acts prohibited in international wars should not be tolerated in civil wars.

Second, instruments protecting the environment during non-international armed conflicts are considerably weaker than those applicable to international wars. The reason for such weakness is not merely technical. It reflects the reluctance of States to recognize international constraints on the conduct of civil war on their national territories.

The sovereignty of States and their traditional insistence on maintaining maximum discretion in dealing with those who threaten their sovereign authority have combined to limit the reach of the law of war to non-international armed conflicts. Treaty language such as that in Common Article 3(2) to the Geneva Conventions, explicitly stating that certain rules will not affect the legal status of the parties, has not proved to be sufficiently reassuring for governments concerned with legal recognition and political status of rebel groups.

The critical stakes involved in internal conflicts, namely, survival of authorities in power, partition of territory, movements of populations, the challenge of identifying the actors responsible for egregious acts of environmental damage, imputability and responsibility issues, all add to the formidable difficulties confronting the international community in trying to improve the protection of the environment in civil wars. How to bind insurgents to emerging international rules that protect the environment also represents a major problem for the international community.

Of course, quite a few of the present difficulties could be resolved, or at least attenuated, through good faith respect for already existing principles. It is possible that most attacks on the environment in internal conflicts would have occurred whatever the normative provisions. But the normative weakness plays into the hands of those who tend to pay little respect for environmental protection to begin with.

There has nevertheless emerged an encouraging, though still tentative, trend towards the extension of some law of war treaties, and some arms control treaties of major environmental importance, to non-international armed conflicts. Consider, for example, the applicability to civil wars of parts of the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, the applicability in all circumstances of obligations of States under the 1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological, Biological, and Toxin Weapons and on their Destruction, and under the 1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction; and most recently, the proposals before the Review Conference of the States Parties to the 1980 Convention on Prohibitions and Restrictions on the Use of Certain Conventional Weapons to extend the prohibitions of Protocol II on the Use of Mines, Booby-Traps and other Devices (Protocol II) to non-international armed conflicts.

Although I share Conrad Harper's and John McNeill's skepticism about prospects for a major expansion by treaty of environmental protection in time of war (at the present time, a diplomatic conference is unlikely to agree to a high common denominator), I would not rule out the possibility of further modest, focused expansion by treaty of environmental protections to non-international armed conflicts.

Moreover, as already noted in the papers presented to our panel, the ENMOD Treaty is applicable in all circumstances. The problem with many environmental treaties, however, is that they are silent as to their continued applicability in armed conflicts. Some environmental treaties, such as those protecting endangered species, their habitats and other particularly vulnerable environmental assets, would not serve a useful purpose unless construed to apply in all situations.

In the ICRC Committee of Experts on the Environment and the Law a suggestion was made to study all the major environmental treaties with a view to ascertaining whether they were intended to continue to apply in time of war, including civil war. That suggestion does not appear to have been followed. Future treaties should, whenever possible, contain explicit language ensuring their applicability in time of war, including non-international armed conflicts.

The difficulty in classifying conflicts as either international or internal provides an additional argument for applying to civil wars the broader protective rules applicable in international armed conflicts. Colonel Burger, for example, treats the conflict in the former-Yugoslavia as non-international, although the Security Council appears to regard the conflict as international and the United States in its *amicus* brief submitted to the criminal tribunal for the former-Yugoslavia strongly argues that the conflict is one of an international character.

In attempting to enhance the protection of the environment during non-international armed conflict, there are several approaches which are not mutually exclusive. I already mentioned the *treaty-making or law-making approach*, which while useful in specific areas, does not promise a real panacea, at least in the present circumstances. In any event, Professor Oxman's suggestion that additional treaty protection could be created for objects of special environmental importance deserves careful consideration.

Second, the *strenthening of the national environmental peace-time policy approach*. Strengthening national environmental law, policy and education during periods of peace may in practice contribute to de-legitimizing environmentally disastrous conduct by government and rebel forces as they battle for the hearts and minds of the people.

Third, the *interpretative approach*, *i.e.*, wherever possible construing those environmental treaties which are silent on applicability in time of war as continuing in effect during non-international armed conflicts. As the ICRC 1993 report to the U.N.G.A. noted, "Rules of general or bilateral international treaties remain applicable in principle to a State in which there is an internal conflict." Of course, absent international war, there is no justification for suspending environmental treaties on grounds of war with foreign countries. There remains the possibility, however, of a State trying to suspend such treaties on grounds of national emergency, necessity or *force majeure*. Other States should be skeptical of such justifications for treaty suspension. Ideally, of course, environmental treaties should provide for non-derogability or at least as narrow derogability as possible.

Fourth, the *human rights connection*. As we all know, there is an important school of thought linking protection of the environment in time of war, including civil war, with protection of human rights. The recent decision of the European Court of Human Rights in the case of *Lopez Ostra v. Spain* has given new vitality to the human rights dimension of environmental protections. Of course, respect of

human rights has always suffered from claims of derogability on grounds of national emergency.

Fifth, the *customary law strategy*. I refer here to the Martens Clause which encapsulates the reservoir of general principles and customary law which serve to limit the discretion of military commanders and suggest that military commanders select those tactical solutions that are most beneficial to the protection of the environment. This would include also such general law of war principles as proportionality and the prohibition of causing unnecessary damage or wanton destruction, and outside of the law of war, some principles of State responsibility. Some relevant environmental standards may already be part of customary international law applicable in non-international armed conflicts without being encompassed in the present, standard interpretations of the Martens Clause. Perhaps the most important challenge is to recognize that these principles, rooted in the Hague law, have an undeniable place in internal conflicts. Because of the high threshold of the environmental provisions contained in Additional Protocol I, their usefulness even for international armed conflicts is limited. The customary law principles stated in the Hague Convention No. IV on the Laws and Customs of War on Land (1907) are, therefore, particularly important.

Sixth, establishment of *model rules and model agreements*. I refer here to the development of a model set of essential standards for the protection of the environment in non-international armed conflicts to be followed by parties to internal conflicts. Compliance would be encouraged through strong international pressure. In appropriate circumstances, such model rules might be transformed into agreements to be accepted by conflicting parties. In drafting the model rules and model agreements, efforts should be made toward greater integration of environmental and law of war standards. This could lead to a more significant emphasis in the law of war on such fundamental environmental concerns as the precautionary principle and respect for future generations. This should also be relevant to the drafting of rules of engagement, military manuals and training methods.

Seventh, *mechanisms* should be set in place for ensuring respect for the existing principles—imaginative consideration should be given to the possibility of more efficient scrutiny and monitoring of violations. Such mechanisms could include, as already suggested by John McNeill: (1) requiring violators of existing principles to pay compensation, and (2) prosecuting such violators as war criminals. I would add that such prosecutions should be contemplated only where the existing customary law is sufficiently established to overcome possible *ex post facto* challenges. One would have to be cautious about the applicability of simple compensatory models in the present state of international law on the environment and war.

Problems about the roles of international institutions in non-international armed conflicts are legion, but environmental protection raises further questions. Special expertise is needed in relation to environmental issues if international institutions are to contribute to monitoring, assessment, and protective measures. Some environmental capacity-building is desirable in the OSCE, Western European Union, the United Nations and NATO, especially where they deploy fact finders, observers, or military units. Technical environmental assistance to States involved in internal conflicts may also play a role in helping promote observance of the law of war. Again, this raises questions of environmental consciousness and environmental expertise of military trainers and foreign military advisers.

Eighth, and most important, the *pragmatic-expansive approach*—here I address the readiness to apply to non-international armed conflicts the broader and more protective rules applicable to international armed conflicts. This approach is exemplified by the paper by Admiral Harlow, who speaks of the duty of States involved in combat operations to act, in military operations other than war, within the constraints of the law of armed conflict.

Even more explicitly, Colonel Burger pleads with regard to the conflict in the former-Yugoslavia for respect by U.N. peace-keeping forces and NATO forces for the more extensive environmental protections stated in Additional Protocol I. He notes that the rules of engagement being used by peace-keeping forces in former-Yugoslavia and the rules proposed for NATO forces acting in support of the United Nations, "Do not make a distinction between international and non-international conflicts" and that any peacekeeping force would follow the environmental provisions of Additional Protocol I "no matter how we classify the conflict." The application of such higher standards, he suggests, would apply not only to non-international armed conflicts but also more broadly to all military operations other than war.

I believe that the incorporation of environmental protections rules of engagement offers a very attractive strategy, as does the inclusion in military manuals of environmental rules which follow, for all armed conflicts, the most protective rules. In addition, the anthropocentric provisions of Additional Protocol II (Articles 14-15) could be broadly interpreted to provide more direct protection to environmental assets.

Most important is the emerging readiness to factor environmental concerns into the calculus of the military commander and, at least as the United States policy is concerned, to apply the more broadly protective rules pertinent to international armed conflicts to non-international armed conflicts as well. Thus, the authoritative Commander's Handbook on the Law of Naval Operations [NWP 9 (Rev. A), at 6.1.2.] clearly states:

> The obligations of the United States under the law of armed conflict are observed and enforced by the U.S. Navy in the conduct of military operations and related activities in armed conflict, regardless of how such conflicts are characterized.

The 1995 revised edition of this Handbook follows the same approach: "[i]n those circumstances when international armed conflict does not exist (*e.g.*, internal armed conflicts), law of armed conflict principles may nevertheless be applied as a matter of policy" [NWP 1-14M at 6.1.2]. Although the U.S. position on this issue is ahead of the views of most States, it is not unique. Thus, the German Humanitarian Law Manual [DSK VV 207320067 at para. 211] states that "German soldiers, like their Allies are required to comply with the rules of international humanitarian law in the conduct of military operations in all armed conflicts however such conflicts are characterized."

None of the above approaches offers a definite or comprehensive solution. Taken together, they suggest useful strategies for more effective protection of the environment during non-international armed conflicts, and serve to facilitate the development of international law, conventional and customary, in this area of growing concern.

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Chapter XXI

Panel Discussion: Panel IV The Existing Legal Framework, Part II Protecting the Environment During Non-International Armed Conflict Involving the Use of Force

Rear Admiral Horace B. Robertson, Jr., JAGC, U.S. Navy (Ret.): Good Morning, I am Robbie Robertson, moderator for this panel. Having heard from the previous panel on the existing legal framework for protecting the environment during international armed conflict, we now turn to an examination of the existing legal framework for protecting the environment during non-international armed conflict operations involving the use of force. That is, "military operations other than war," sometimes abbreviated as MOOTW.

Chairman, Joint Chiefs of Staff Instruction 3110.03 defines MOOTW as, "The use of military capabilities across the range of military operations short of war." Protecting the environment in such operations could embrace a continuum of actions ranging from the most mundane, such as the proper disposal of garbage at sea, through oil spills created by attempts to enforce an oil embargo, all the way up to target selection for air strikes to enforce protected zones in Bosnia. Colonel Burger will address this latter conflict, or non-conflict, in detail. You may wish to challenge the assertion that I believe he will make that NATO considers this a MOOTW operation.

To discuss our topic, we have four eminent experts, two of whom will summarize their papers which are being distributed, and two of whom will comment. In order to allow time for discussion at the end, our two principal speakers have agreed to limit their remarks to 20 minutes and our commentators to 15 minutes. Rather than interrupt their flow, I will introduce all of them now in the order in which they will speak:

First, Rear Admiral Bruce Harlow, JAGC, U.S. Navy, Retired. Admiral Harlow had a distinguished 28-year career as a JAG Corps Officer, culminating in his service as Assistant Judge Advocate General of the Navy, and JCS and Department of Defense Representative for Ocean Policy Affairs. Additionally, he was Vice Chairman of the U.S. Delegation to the Third U.N. Conference on the Law of the Sea. He stays active in the international law field as a consultant to the Air Force and lecturer at the Naval War College.

Colonel Jim Burger, JAGC, U.S. Army, has had a 26-year career in the Army JAG Corps with extensive tours of duty in international and operational law. He is currently Legal Adviser to the Commander of NATO, Allied Forces South in Naples, Italy, the commander of the forces engaged in the NATO air strikes in Bosnia.

Dr. Raul Vinuesa is a distinguished professor of international law and human rights at the University of Buenos Aires, the Institute of Foreign Service of the Ministry of Foreign Affairs and the Argentine Naval War College. He also serves in other advisory capacities in the Argentine Government and around the world.

Professor Ted Meron is a well-respected professor of international law at New York University School of Law specializing in human rights and international humanitarian law. Among his many other roles, he is Editor in Chief of the American Journal of International Law, the official publication of the American Society of International Law. I am sure that many of you have been amused, as well as enlightened, by his recent article which got widespread comment entitled, "Shakespeare's *Henry V*, and the Law of War" at that time.

Without further ado I present Admiral Harlow.

Rear Admiral Bruce A. Harlow, JAGC, U.S. Navy (Ret.): Thank you very much. I do not know if it is an environmental issue, but I heard this morning that Saddam Hussein has seized 1,000 lawyers and threatens to release them 100 per week unless his demands are met. [Laughter.] At the outset, I would like to make a couple of general comments on the discussion that we heard yesterday and this morning. Yesterday, reference was made to documentation from an Iraqi official which clearly indicated the burning of the oil wells in Kuwait was vindictive. The inference that one could draw, I do not think it was intended but one could draw it, was that the confession of this intent along with the act would clearly indicate the illegality of the act itself. I would emphasize, however, that the admission of evil intent does not make an act illegal, in my judgment, any more than profession of pure intent makes an otherwise unlawful act legal. I think that although confession of error may bear some relevance in the examination of the legality of an act, one must look to the act itself, the consequences of the act, and the circumstances under which the act was undertaken to assess the legality or illegality of the act.

In the United States, at least in my experience, to describe a single intent for anything we do, is a mission impossible. The reality is that if there are 14 officials involved in a decision, they are coming from 14 different intents. I think it is a rather futile effort to discuss the intent of an international act. Reference was made to oil tankers. The hint that I drew from that was perhaps that oil tankers should be declared a prohibitive target. Again, perhaps that was not intended, but I would like to make the point that this would be a dangerous approach. Indeed, any strict

list of prohibitions is a dangerous approach, because it presumes that we can predict the future. It presumes that we can predict the circumstances under which we may want to target an oil tanker and that reasonable men would agree that the consequences, including environmental consequences, are outweighed by the human and national security needs that may pertain to the situation. I think it is a mistake to attempt to prejudge the future and deviate from the basic principles of proportionality and necessity.

I would like to recognize Commander Mike McGregor who co-authored our paper and, indeed, wrote a significant portion of it. We both hope that you will have a chance to read the paper and we would very much appreciate any comments you might have. Now, as Admiral Robertson pointed out, the topic before us is environmental considerations during military operations other than war. One difficulty I have, personally, with that is that I have never met a U.S. attorney that can intelligently define what war is in this context.

I define it for this purpose as armed conflict. So for the purpose of our paper and for my discussion this morning, I am talking in terms of military operations which are limited to those actions that are not premised on the extraordinary right of self-defense. Therefore, the military operations that I am talking about do not involve the use or threat of force except perhaps in a law enforcement mode but not in a warfighting mode. In this context, I believe it is reasonable to conclude that military forces must generally comply with accepted principles of customary and treaty law applicable to the State in which they are operating.

This rule of law, in my judgment, can be summarized as follows: States, to the extent practicable under the circumstances, must not cause significant injury to the environment of other States or to international areas. *Ipso facto* this obligation carries with it a duty to assess environmental implications before the fact. As mentioned yesterday, as far as the United States is concerned, an Executive Order of the President and Joint Chiefs of Staff guidance require such an assessment where military forces are involved. Under international law, States are free to somewhat degrade their own environment assuming the impact does not extend beyond their borders. I would suppose, therefore, as a matter of international law, that armed forces involved in operations other than war (read armed conflict) are only obligated to comply with the standards of the State in which they are operating, even if the domestic standards of the host State which is supplying the armed forces are stricter—sort of the "lowest common denominator" rule.

It should be emphasized that once forces are involved in armed conflict, the laws of war—the principles of proportionality and necessity—would pertain, and, indeed, would, under certain circumstances, displace and/or mold normal peacetime principles. What I envision in this middle world of non-violent use of armed forces, whether it be for constructing a refugee camp or humanitarian assistance, we should follow the normal peacetime rules as is generally the practice

with regard to ICAO rules for the air navigation of military aircraft throughout the world. Although the United States military makes it perfectly clear that military aircraft are not bound under all circumstances to comply with ICAO safety and navigational rules, generally speaking in the peacetime environment milieu, military aircraft do comply with those rules. I think the military flight patterns throughout the world in the last 40 years have proven to be non-threatening and have been basically neighborly with commercial air navigation throughout the world.

I have to reemphasize the point that when we are talking about the exercise of the extraordinary right of self-defense or extraordinary circumstances, military aircraft should, and must be allowed the freedom to exercise the rights that would be premised upon these extraordinary requirements. So it might be true, with regard to environmental rules, that under normal peacetime circumstances, armed forces would comply with the international standards and norms expected of all other State officials. It would be the exception that would apply only when we are exercising the extraordinary right of self-defense.

It is also true that although States, under existing international law in our view, are free to degrade the environment, more and more States are enacting domestic legislation to establish minimum standards. As this number grows—there are now around 40 States that have environmental standards that apply domestically—as the thought grows that domestic environmental practices do have at least an indirect effect on the world community, I think emerging international law will follow the principle that a minimum environmental standard is required of each nation-State as an element of human rights. If that be true, then eventually one can envision international standards that would be applicable even to domestic practices even though the impact of such domestic practices might not be felt beyond the borders of the State or in an international area.

Finally, let me make this contextual point. It must be recognized that effective measures to protect and conserve the global environment will involve significant costs and policy tradeoffs. International legal norms designed to protect the environment, unless they are to be observed in the breach, must take into consideration economic, political and national security realities. A well-considered, balanced, cost-effective international and economically oriented environmental regime, could, however, serve important interests of the world community, well into the convoluted and complex multi-polar world of the Twenty-First Century. Thank you.

Colonel James A. Burger, JAGC, U.S. Army, Staff Judge Advocate, Allied Forces Europe/HQ AFSOUTH: As has already been mentioned, I am going to address the material covered in my paper on the ongoing conflict in the former Republic of Yugoslavia. I think it certainly is a conflict which has been in the

forefront of most peoples' minds when they think of what is going on in conflicts today. Maybe it is also a sign of the type of conflicts that we have in today's world, and we might continue to have in the future.

I also think that it is important because this conflict has had a profound affect on the environment. I think it is appropriate for this Conference to look at how we have dealt with environmental problems in this conflict. I did have some problem when I began preparing to write my paper trying to identify what type of conflict this was. Within the circles of the military people dealing with the problem, there is a lot of debate about this. It is probably the most extensive peacekeeping operation that we have had in the world's history. Certainly, we have sent thousands of peacekeepers in and created an extensive "peacekeeping" mission. We have also gotten into the debate of whether this is becoming a "peacemaking" mission, whatever that is.

But when I analyzed what has happened and looked at the rules that we are applying, I had to conclude that no matter what else, this was a limited operation. It was not a full-blown international conflict, at least as far as we who were sent there are concerned. The U.N. forces were sent there as "peacekeepers." The NATO forces that were sent there, although to help the U.N., have, perhaps, become "peacemakers."

There are limits; everything that we are doing had to be authorized by a U.N. resolution and a NATO mandate. We are going to follow those mandates and not go beyond them. Also, this has been an extremely complex operation involving U.N. peacekeeping. The U.N. was first sent in to separate the Serbians and the Croatians in the Krajina area. It was the humanitarian relief operation in Bosnia proper, which was a separate operation from the peacekeeping operation. We had the embargo operation at sea, Sharp Guard, which is a NATO operation and Deny Flight, the air operation which maintained a "no-fly zone" over Bosnia and also which came to the aid of the U.N. forces. More recently, it has tried to protect the so-called "safe areas." And, most recently, to protect Sarajevo. That was what this recent bombing campaign was all about. So, extremely complex operations involving land forces, air forces, and sea forces present all sorts of problems in the environmental area which I think will be interesting for us to look at.

The fact that the environment has been affected by the conflict is undeniable. First, because of the intense fighting which has been going on in the area. Second, due to the movements of populations which you see on television. There are thousands of people being forced to move from one area of the country to another. Some of this is deliberately forced, with the burning of houses and farms and that sort of thing.

You also have the scale of the peacekeeping operation itself. There are thousands of peacekeepers, and supply convoys, and all of this being put into a relatively small area can not help but have an effect on the environment—the

embargo operation, the sea operation, the possibility of oil spills and the discharges from ships, the air operation carrying of hazardous cargoes, the possible pollution from operating airports and facilities and those things which are applicable to the land operations as well. We see all of the problems coming out of military operations having an effect on the environment.

My paper asks how have we dealt with these problems. I tried to examine the type of rules that we have set up for ourselves and how we have tried to exercise restraint and control for the protection of the environment. While environmental problems may not have been the foremost thing on peoples' minds in regard to this conflict, it certainly was considered. There were many things that were done to protect the environment.

Our operational plans have several very important annexes. They include the Rules of Engagement Annex, which sets out the rules which apply to actual military operations; and the Legal Annex, which sets out those legal rules which apply to all of the other things not covered in the Rules of Engagement Annex. Both of these Annexes start out with a statement regarding the preservation of the environment, that we will apply applicable rules of law—including the law of armed conflict, the law of the sea and national rules that may apply to the environment within the countries concerned. All of these rules of law set limits upon what our armed forces could do and how they are to conduct their operations.

Looking first at the rules of engagement. Even though not all of the participating nations were parties to the Additional Protocols, we looked to the Protocols as a good statement of many of the customary rules of armed conflict but we did not want to say that the full panoply would apply. We took the position, and it was clearly stated in the rules of engagement, that we would require the forces to follow the rules of armed conflict. I think these would include those customary law rules that are set out in the Additional Protocols, and the Additional Protocols do, of course, mention environmental protection, Article 35 and Article 55, which have already been cited.

More importantly though, all of the rules of the law of armed conflict were very germane and had to be considered in attempting to limit collateral damage which was important in protecting the environment.

I mentioned the Legal Annexes which cite that the legal rules are generally applicable either in the air, on the sea, or on the land. The Law of the Sea Convention has articles regarding environmental protection, Article 192 and Article 194. These rules are being applied to Operation Sharp Guard. In regard to air operations, I mentioned in my paper the Basel Convention on Transboundry Movement of Hazardous Wastes. Certainly, we carry a lot of hazardous cargo in our air operations. Accidents have to be prevented and the places where these cargoes are stored have to be well maintained so that the materials are kept safely and do not pollute the surrounding environment.

Another area covered in the Legal Annexes is the responsibility for damages. This was mainly in the context of the payment of claims. The United Nations has a very extensive claims payment program. The policy of the U.N. is not to pay claims for regular operations where there is no fault or where things are done in the line of duty. However, the U.N. does pay claims where there is some sort of fault or negligence involved. We have had a number of instances where environmental type claims have been paid by the U.N. Of course, since we have had NATO forces and other national forces operating there as well, we have received claims at NATO. Individual nations have also received claims coming out of the Yugoslavia conflict. I think it is important to address the issue of claims because if there is a responsibility for the payment of claims then the nations participating will hopefully take measures to try to prevent the occurrence of claims by taking precautions against environmental damage.

Another area covered by my paper involves the agreements that we have between or among nations. There is the U.N. Model SOFA; the U.N. has executed or contracted a model SOFA agreement with the Bosnians and, more recently, with the Croatians. One of the provisions in this SOFA is that there will be respect for the law of the receiving State. NATO is also negotiating SOFA agreements that would go into effect if this becomes a NATO operation. If NATO went in to help U.N. forces withdraw or as part of a peacekeeping operation, there would be NATO SOFA agreements stating that there would be respect for the law of the receiving State. I say "respect" because there is something you have to be very careful of here. A country may have a very sophisticated environmental program that cannot be complied with during conflict. But there certainly would be respect for the rules and that respect would include environmental protections.

Another type of agreement might be those between the participating parties, between the U.N. and NATO, or between the NATO participants. These agreements might set out who is responsible for claims, how they are going to be investigated, how you are going to assess responsibility, and which party is going to have to pay damages.

I made some generalizations at the end of my paper. The most important and primary is that environmental rules have to be applied to all conflicts, even those that are non-international or are true humanitarian operations. The environmental rules and the rules which apply to armed conflict have to be recognized. Our forces must be advised that there are a set of rules which they are expected to obey. Our rules of engagement make clear that we will comply with the law of armed conflict no matter what type of conflict it is. In fact, we deliberately avoid characterizing the conflict. We just enjoin our forces to comply with the law of armed conflict. A second generalization of my paper is that you must recognize the responsibility of our forces to respect the laws of the receiving State. We utilize Status of Forces Agreements to do so. Our operations in the

former-Yugoslavia has given us a great deal of practical experience in how to address environmental problems. If you take the position that, yes, we do have a problem here, an environmental problem, and then try as best you can to work that problem, we will have accomplished a great deal. Our experience in Yugoslavia has, at least, been a beginning, a beginning we can look back upon in later years and draw some value from it.

Thank you.

Dr. Raul E. Vinuesa, University of Buenos Aires: Thank you. I have assumed the role as commentator so I will not deliver my own approach about non-international armed conflicts but instead will make a few remarks on the subject.

This is a very difficult task because the main topic is: "The Existing Legal Framework." After reading both of the very accurate and appropriate papers of our presenters, I tried to squeeze out of them what the law was, and I have had some difficulties because I found out, for instance, that United Nations peacekeeping operations are being considered as part of "military operations other than war." Let me, as my first comment, try to make a distinction within the topic that we are now dealing with, which is protection of the environment during non-international armed conflicts. In my view, there are military operations other than war that could be related to non-international armed conflict but also could be related to just the simple use of force in compliance with international law. If, for example, we are thinking of new rules for the conservation of highly migratory fisheries, which will come to the U.N. General Assembly for consideration in December, you will see that Articles 21 and 22 of the draft convention talk about the "use of force" but do not define what that "use of force" is. If it means force which will involve military operations other than war, the law applicable in time of peace should continue to apply.

So having said that, I will just take one second to deal with what is going on in non-international armed conflict operations in which there is no external intervention. When I refer to external intervention I mean any third party intervention as in recent experiences within former-Yugoslavia "peacekeeping operations."

If, during an internal armed conflict, there is no peacekeeping operation and there is no third State intervention, what is the applicable law here? Additional Protocol II, but most probably the State in which the insurgency or internal armed conflict is taking place is not a party to it. That will be one of the main problems. Even if that State is a party to Additional Protocol II, it is very difficult to think that Articles 14 and 15 of that Protocol will cover the protection of the whole environment as such. Protocol II only concerns the protection and the survival of the civilian population which will, in a collateral way, protect the environment.

So basically what remains to be applied to the foregoing situations is just internal law.

In that sense, a problem of legal lacunae will arise because any number of States have not developed domestic law regarding environmental protection in general, and certainly not in terms of armed conflicts, even internal armed conflicts. In one of the papers just presented to us there is a very accurate comment about new trends or new developments within domestic law in which reference is made to several examples where constitutions and other internal statutes have introduced regulations concerning the protection of the environment. I could add another example to that list with the Argentine Constitution, as reformed in 1994. It includes an impressive new section dealing with very basic general principles on environmental protection. But no one knows what it really means in practical terms because it is a pure programmatic declaration without immediate direct possibility to be implemented. But at least it is good for it to be there. We will see how that is developed.

So what is finally the applicable law for those situations in which there is no domestic law to be observed? I think there is a possibility to consider the applicability of general and basic principles recognized world-wide which are linked to an historical development approach within international environmental law. Through analogy, and by implication, we can depart from the general principle that expresses the duty not to damage other States and areas beyond national jurisdiction. But that seems rather dangerous because its direct consequence would be that as long as a State produces environmental damage within its own territory, the nonexistence of internal legal obligations would permit virtually unlimited damage to the environment. On the contrary, States must observe, even when involved in an internal armed conflict, their duty not to affect the environmental interests of other States or of the international community as a whole. State responsibility would only emerge when the effects of internal activities expands national frontiers.

Let me conclude on that issue that international standards pertaining to environment protection, *per se*, are very poorly developed. But most of our expectations to reverse that situation would not necessarily be concentrated on the international level but on future domestic legislation where basic uniform standards could influence what is going on within the territory of individual countries.

The prior panel addressed international armed conflict and I will not address that. What I will address is what I will call a "mixed situation" involving peacekeeping forces not directly involved in combat. In most instances those forces have much stricter obligations than domestic belligerents. They are governed by conventional arrangements among the participating nations comprising the peacekeeping forces. They also have their own national rules of engagement that

they use when they come across a common problem. Still, they have very basic principles that they have to adhere to during the intervention.

But as they are not involved in combat, there will be few situations in which damage to the environment could be justified by military necessity by peacekeeping forces.

Let me explain what that means. It is arguably an internationalization of the conflict when peacekeeping operations are introduced into a specific internal conflict. This is something that really complicates the whole subject. Even in the former-Yugoslavia situation, the question will be whether the peacekeeping operations/intervention would impart international armed conflict obligations on the internal belligerents, but not, of course, on peacekeepers who have their own obligations, rules of engagement and conventional agreements.

Considering military operations other than war, and I want to make a distinction between peacekeeping operations and other military operations, which implies the use of force performed in compliance of international law. Once again, the example I gave before on the law of the sea regarding unilateral actions in which some use of force is legally justified. The fisheries conservation policies prescribed by the Law of the Sea Convention and the new draft agreement on highly migratory fish stocks, allow the use of force outside the 200 mile exclusive economic zone under international standards. Why? Because most of those operations will take place in areas under international jurisdiction.

With regard to military operations in general, if you perform them in your own territory it is your own environmental problem. If you cross a border, or you get into a complicated jurisdiction that is beyond your national jurisdiction, I think we enter a different scheme which is basically international environmental law applicable in peacetime.

As a final reflection, I think that we are dealing here with the very basics of the Fourth Hague Convention, a Convention that limits the use of force in war. These same principles have been applied to protect the environment in the course of military operations during time of peace as well.

Finally, I would like to mention that the papers submitted by our panelists have examined the relationship between environmental protection and human rights. We have come to appreciate that the environment is not just the habitat in which human beings develop their lives. In the past, however, protection of the environment during armed conflict has been dealt with as a sort of collateral effect derived from the protection of individuals.

We are in a transitional phase in which new trends, not law but trends, related to the generation of a universal consciousness towards the protection of the environment are reflected in rules of engagement, especially those rules applied by certain developed countries not only concerning peacekeeping operations, but mainly concerning any military operations. I believe that those attitudes provide

a strong input of how to internally tackle the environment during internal armed conflicts.

Rules of engagement on an international level will be the aggregate means to implement and enforce these developing standards. I stress this idea of developing standards because I am not quite sure what the law is respecting non-international armed conflicts. On the other hand, it could be perceived that as of today, there are developing standards concerning environmental protection during all sorts of military operations other than war, not just restricted to operations in which peacekeeping forces are involved. Thank you.

Professor Theodor Meron, New York University: I am grateful to Captain Jack Grunawalt for having invited me to this very timely, interesting and stimulating conference. I think that you, sir, deserve special thanks for bringing together a group of academic civilian and military experts on law and environment for a discussion of this extremely important subject. I would think that meetings and dialogues of this kind are something that we need even more in the future. If I may make a personal comment, it is that people are not aware of the extremely important work in international law that is being done in the military community.

In assessing protection of the environment in non-international armed conflicts, one must keep in mind certain basic considerations. First, to be effective, protection of the environment must be continuous. It cannot depend on differences between peace, war and civil war. It is encouraging to note that there is an emerging consensus that what is prohibited for international wars cannot be tolerated in civil wars. Second, as we all know, instruments protecting the environment in non-international armed conflict are considered to be weaker than those applicable to international wars. The reason for this weakness, and this is the heart of the problem, is not merely technical. It reflects the traditional reluctance of States to recognize international constraints on the conduct of civil war within national territories. The critical stakes involved in this conflict, namely, survival of authorities and power, partition of territory, movements of population, the challenge of identifying the actors responsible for especially grievous violations of the environment, imputabilities and responsibility issues, all act to create formidable difficulties confronting the international community in trying to improve the protection of the environment in non-international armed conflicts. How to bind insurgents through rules of international law continues, of course, to be a very major problem. Of course, quite a few successes have been pointed out by some of our colleagues and quite a few of our present difficulties could be at least attenuated through good faith and respect for already existing principles. But the undeniable normative weakness plays, I suggest, into the hands of those who tend to pay little respect to existing rules.

There has nevertheless emerged an encouraging though tentative trend towards the extension of some law of war treaties and some arms control treaties of major environmental significance to non-international armed conflict, and I would like to mention briefly some of these treaties. This is already positive international law, not something futuristic. Consider, for instance, the applicability of some parts of the 1954 Hague Convention on the protection of cultural property to non-international armed conflict. Consider the applicability of the 1972 Biological Weapons Convention in all circumstances, including non-international armed conflicts. Or consider the applicability of the 1993 Chemical Weapons Convention to all conflicts, international or internal, and so on.

And most recently, I would like to draw your attention to the proposals before the Review Conference of States party to the United Nations Conventional Weapons Convention of 1980 to extend the prohibitions contained in Additional Protocol II on land mines, *et cetera*, to non-international armed conflicts. Although I share Dr. McNeill's skepticism expressed in his excellent article in the 1993 Hague Yearbook of International Law about prospects for a drastic expansion by treaty of environmental protections applicable in time of war, I would not rule out the possibility of a fairer, modestly focused expansion by treaty of environmental protection to non-international armed conflicts. We have seen this in the treaties which I have briefly mentioned to you and have seen that this sort of expansion can also be focused on particularly important objects or essential environmental assets.

Moreover, as is noted in my paper, we had hoped the ENMOD Convention was applicable in other circumstances. Some other environmental treaties, such as those protecting endangered species, their habitats and other particularly vulnerable environmental assets would, I suggest, not make much sense unless they were construed as applicable in all conflict situations. In the ICRC Experts Committee in which I participated together with several other people present here such as Professor Bothe, a suggestion was made that all major environmental treaties should be studied with a view towards ascertaining whether they would be applicable in a time of war including non-international armed conflict. I strongly support the comments made in this regard by my colleague and friend Paul Szasz this morning. A point here of relevance is whether it would not be possible to try and see whether in future treaties dealing with the environment we could not, whenever possible, incorporate explicit language dealing with this problem.

Now, the difficulty noted by, among others, Colonel Burger a few minutes ago of classifying conflicts as either international or internal, provides a powerful argument, I submit, for the application of the more protective rules which are applicable normally in international armed conflicts. Colonel Burger, for example, appears to treat the conflict in Yugoslavia as primarily non-international armed

conflict. Yet, the United States Government, in its omnibus brief submitted to the Hague Criminal Tribunal, has asserted very strongly and categorically that the entire set of conflicts in Yugoslavia constitute international, not internal armed conflicts.

In attempting to enhance in the future, protection of the environment in non-international armed conflict, I would like to point to several approaches which are not mutually exclusive. I already mentioned that the treaty making or law making approach, while useful in specific areas, does not hold much promise, as we have seen from the discussion of the earlier panelists, for the future in the present circumstances. Professor Oxman's suggestion, voiced in his 1991 article, that additional treaty protection could be created for objects of special environmental importance deserves, however, careful consideration.

The second approach is to try to strengthen national peacetime environmental policies. Strengthening national environmental policy, law and education during periods of peace may, in practice, contribute to de-legitimatizing those acts which are really disastrous for the environment in time of internal war, whether carried out by the government or by rebels as those two groups battle for the hearts and minds of men.

There is also the interpretive approach. Wherever possible, we should try to construe environmental treaties which are silent on their applicability in time of war as continuing in effect during non-international armed conflicts. The 1993 ICRC report to the United Nations General Assembly makes this point very strongly. Of course, absent international wars, there is no justification for suspending international treaties on grounds of war within sovereign States. There remains, however, a rather troublesome possibility of a State trying to suspend such treaties on grounds of national emergency, necessity, or *force majeure*. Other States should be skeptical of such justifications for treaty suspension. Ideally, of course, environmental treaties should provide for non-derogability, or at least for as narrow a derogability as possible.

Fourth is the human rights connection. As we all know, there is an important school of thought linking protection of the environment in time of war, including of course civil war, with protection of human rights. The recent decision of the European Court of Human Rights in the case of *Lopez, Ostra v. Spain* has given new vitality to the human rights connection of environmental protections. Of course, respect of human rights has always suffered from claims of derogability on grounds of national emergency.

Fifth is the customary laws strategy. I refer to the Martens Clause which encapsulates the reservoir of general principles in customary law which limits the discretion of the military commander and suggests that military commanders select those tactical solutions that are most beneficial to the protection of the environment. This would include also such general law of war principles as that

of proportionality, the prohibition of causing unnecessary damage or wanton destruction, and perhaps also some principles of State responsibility. Perhaps the single most important challenge at the present date is to recognize that these principles rooted in the Hague law and confirmed to a certain extent by the Geneva Conventions of 1949, especially the Fourth Geneva Convention, have an undeniable place in non-international armed conflict.

Sixth, other rules and other agreements. I refer to development of another set of essential standards for the protection of the environment in non-international armed conflicts to be followed by the parties to those conflicts. Compliance will benefit from strong international pressure on the parties and from the need of the rebels for international recognition of some kind. In other circumstances, such other rules might be transformed into agreements between the parties and in drafting those other rules and other agreements an attempt should be made towards greater integration of environmental and law of war standards. This could lead to a more significant emphasis in the law of war on such fundamental environmental concerns as the precautionary principle and respect for future generations. This should also be relevant to the drafting of rules of engagement, military manuals and training models.

Seventh, mechanisms for inducing respect for existing principles. We have spoken about that this morning, and I would like to develop that a little bit. I would suggest that imaginative consideration should be given to the possibility of developing more efficient scrutiny and monitoring of violations. Such mechanisms could include, as already suggested by Jack McNeill, (1), requiring violators of existing principles to pay compensation and (2), prosecuting aggressive violators as war criminals. I would accent that such prosecutions should be contemplated only where the existing customary law is sufficiently established to overcome possible challenges of *ex post facto*. One would have to be cautious about the applicability of simple compensatory models in the present state of the international environment. Problems about the role of international institutions in non-international armed conflicts are legend. But environmental protection, I suggest, raises additional questions. Special expertise is needed in relation to environmental issues. If international institutions are to contribute to monitoring, to assessment and to the calibrating of process and the development of protective measures, some environmental capacity building is desirable in the ICRC, OSCE, the United Nations, and NATO, especially where some institutions which I have mentioned deploy fact-finders, observers or military units. We need, perhaps, to think of technical assistance to States involved in internal conflict in this context. We need to raise environmental consciousness and expertise of military trainers and foreign military advisors.

Eighth, and most important, is the problematic expansive approach. Here I address the readiness to apply to non-international armed conflicts the broader

and the more protective rules applicable to international armed conflicts. This approach, as exemplified by the paper written by Admiral Harlow and even more explicitly by Colonel Burger, pleads with regard to the conflict in the former-Yugoslavia for respect by United Nations peacekeeping forces and NATO forces of the more extensive environmental protection stated in Additional Protocol I. Colonel Burger notes that the rules of engagement used by the peacekeeping forces in Yugoslavia, and the rules of engagement proposed for the NATO forces acting in support of the United Nations, and I quote: ". . . do not make a distinction between international and non-international conflicts," and that any peacekeeping force will follow the environmental provisions of Additional Protocol I, and I again quote: ". . . no matter how we classify the conflict." The application of such higher standards, Colonel Burger suggests, would apply not only to non-international armed conflicts, but also more broadly to military operations that fall short of war.

I believe that rules of engagement offer a very attractive strategy as does the inclusion in military manuals of environmental rules which follow, for all armed conflicts, the most protective rules. In addition, the anthropocentric provisions of Additional Protocol II could be broadly interpreted to provide more direct protection to environmental assets. Most important is the emerging readiness, which we have seen especially from General Linhard yesterday, to factor environmental concerns into the calculus of the military commander.

None of the above approaches offers a definite or a comprehensive strategy. Taken together, however, they suggest useful strategies for more effective protection of the environment in a non-international armed conflict, and they serve to facilitate the development of conventional and customary international law in this area of growing concern.

Thank you, sir.

Admiral Robertson: Thank you Professor Meron and all our panelists. I will now open the session to questions and comments from the floor.

Captain Stephen A. Rose, JAGC, U.S. Navy, U.S. Atlantic Command: My question is for Colonel Burger, perhaps the panel at large. Jim, your paper has a very optimistic assessment of the ability to weave environmental concerns into the rules of engagement—it was done seamlessly; it was done without much sweat, and apparently without any real dilemma for the commander. Harking back to earlier speakers who made the same basic point about the Iraqi situation, we have the luxury of factoring in environmental concerns without much difficulty for the commander. Professor Roberts, however, makes a telling and useful point in his paper. He suggests that at the higher levels there were other urgent concerns—the use of weapons of mass destruction, the potential mistreatment of prisoners, and

perhaps extra-territorial terrorists acts—that trumped, or at least subordinated any environmental concerns.

The question I have for you is, in your actual discussions with the commander, what dilemma did you face? What actual considerations or scenarios that you discussed caused the commander to say "Wait a minute, time out, I'm not sure what the balance here is." Because the thrust of your paper is there really wasn't a problem, and yet I have a sense that what we are talking about is not melodrama here, good versus bad, but good versus right, competing rights. Yet in the actual application of all the scenarios we have talked about, I have not really seen the ethical dilemma put forward in the context that would make the military commander really feel awkward or feel that he has a hard choice to make.

My final point in posing this question is that in observing our panel of senior officers yesterday, although they genuflected in the arena in the direction of environmental concerns, I got a lot of body language that they were uncomfortable about really being taken to task concerning a primacy of environmental concerns when it came down to making hard choices. So, when you talked to your commanders, what was it you discussed behind closed doors that made them feel uncomfortable?

Colonel Burger: I am not sure I can tell you everything I discussed behind closed doors. I am a little surprised that you drew from my paper that it was not a problem, because I think it really is a very big problem, and a difficult problem.

What I meant to convey is that the recognition of the environmental rules, and that we will follow the rules, is not in question. Our commanders did agree that they wanted to follow the rules, and they were looking to the lawyers to point out to them what the rules were and this included environmental rules. I should point out that I am not the only lawyer over there. It is interesting that there were U.N. lawyers, NATO lawyers, and national lawyers of a number of different nations all working on these problems. Now, as to particular questions, it is difficult, especially from the NATO point of view, because we really are not involved on the ground yet. But as far as the maritime operation was concerned, it was the regular business of trying to prevent pollution in the oceans or discharges from the ships. These are preventative things that our navies normally do. The air forces, generally, also take precautions in regard to their carrying of hazardous cargoes and that type of thing. But really where we get involved in a lot of difficult problems in a peacekeeping operation is on the ground. At that time, I think we are going to have a lot of difficult questions, but we have not gotten to that stage yet.

Captain Rose: A quick follow up. I would argue, *Q.E.D.*, where is the conundrum? I mean what actually is happening in the military operations other than war arena

that puts the ethical dilemma or the juridical dilemma to the commander? I do not know of any scenarios. Can you cite any?

Admiral Harlow: Perhaps, to put it in perspective from the orientation of the panel yesterday, I think it is fair to say that in the history of warfare there has been a greater impact on human beings by direct killing than there has been by adverse actions taken against the environment. I think we have to remind ourselves that if the need is so great that we all agree it warrants the killing of human beings, it is not unreasonable to conclude that collateral environmental damage, although important, is collateral to that primary issue of justifiable homicide. The dilemma of U.S. commanders frequently is: are the restrictions of the ROE going to result in a greater loss of our forces? That is, will more of our young men be killed by virtue of these restrictions? That is the way I think it was emphasized yesterday.

Dr. Myron H. Nordquist, Naval War College: My question is probably also for Colonel Burger. I do not understand the legal theory of why NATO is in Bosnia in the first place. We keep talking about the "rule of law," and I wonder if we should not be following constituted documents like the North Atlantic Treaty. As I understand it, Article 5 states that there has to be an armed attack against one of the parties for NATO to become involved. I wonder, is anybody thinking fundamentally like "Gee, do we have the authority to be here in the first place?"

Colonel Burger: The NATO Council discussed that very thoroughly and passed a resolution in which they said NATO was authorized to participate in peacekeeping, humanitarian, and other types of operations other than normal defense. So these operations, which are outside the historical role of NATO, have been approved by the NATO Council. Of course, the theory in approving the Bosnia operations was that this is also connected to the basic defense of the NATO countries themselves, by preserving the peace. But these non-traditional type of operations have been approved by the NATO Council.

Professor George K. Walker, Wake Forest University: I have a comment for Colonel Burger. First of all, when we drafted the San Remo Manual, we used the term "due regard" rather than "respect" because of the use of the word "respect" in the humanitarian law conventions. That is more of a comment. The other is a question. If we assume that you are going in with "respect" or "due regard" for the law of the host State, and if we assume that the State would either apply some sort of international norms to which there is a derogation in time of emergency, or perhaps they have a national derogation policy, where do you go for your law from

there? You are going into the host State in an emergency, which by definition exempts out the environmental norms, what law are you going to apply then?

Colonel Burger: I am not sure that it exempts out all of the environmental norms, but it certainly is true that you are going in in an emergency. You can not be expected to follow all of the rules. That is why we use terms like "due regard" or "respect." There has to be a certain amount of give and take there. The standards that we would apply in our operations, for example in Italy where we have support bases, are different than the standards that we would apply if we went into Bosnia and had forces on the ground in Bosnia.

Mr. William M. Arkin: Colonel Burger, I think you are familiar with the MOU between your commander and NATO dated 25 July 1995 that was released last week by the Secretary General's office. It is the confidential MOU that lays out the rules of engagement regarding the use of force. Under "Targeting Arrangements," it says in Paragraph 14, "A joint air plan designed to achieve a graduated response will be developed by COMAIRSOUTH in coordination with the commander of the U.N. force. The plan will include attacks on targets selected to achieve the desired response. Examples of targeting categories, including fixed and mobile are . . ."—and they give three categories or options—"fielded forces including troop concentrations," "command and control, and supporting lines of communication," and "direct and essential military support." Then there is a note, and it says Option I and II targets are within a ZOA (Zone of Action) approved previously. Option III targets are subject to political approval. But nowhere in this MOU does it specify what political approval means, who the political authority is that we are referring to, and what exactly is the reason for Option III targets being subject to political approval nor what is defined as "direct and essential military support." So when I read this document, I am sure it is backed up by the NATO OPLAN 4201 and others, I do not get from it a clear statement of what the restrictions are, or what types of targets can be attacked under the current conflict. One might argue that this is not an issue yet, but there might be targets which are controversial, let us say, defined as "direct and essential military support" that might challenge questions of interpretations of the law. And I am wondering if you could go into a little bit about how these ambiguous formulations are put into practice.

Colonel Burger: I think it is improper to call those the rules of engagement. It was not meant to be so. The rules of engagement are separate and this particular agreement was to assure proper coordination between the United Nations Command and the NATO Command so that the decision to target and to choose

targets would be done in coordination and would not be done at the risk of the U.N. forces. This came after a lot of difficult discussion between the U.N. and NATO and how we are going to arm one force or the other, or one mission or the other. So it is really very incomplete when it refers to how you target or choose targets.

Colonel David E. Graham, JAGC, U.S. Army: In an effort to give Jim a break here, so that he no longer has to defend either U.S. or U.N. policy in Bosnia, I would like to take contentiousness perhaps to a new height and object to the title of the panel overall. That is, if we use the terminology used in the panel title, we are going down a slippery slope, and perhaps beginning to mix apples and oranges with respect to non-international conflict and MOOTW.

I think because we are significantly involved in both areas, we have to be very precise about what we call non-international conflict, on the one hand, and MOOTW on the other. For most of us who have worked this area for a number of years, non-international conflict means common Article 3 conflicts or conflicts under Additional Protocol II to the 1949 Geneva Conventions. If you take a look at Service or Joint literature or doctrine right now, we have trouble identifying what we mean by MOOTW, but we have identified specifically 13 different subsets of military activities or operations that we consider to be MOOTW. None of those are non-international conflicts. They run the full gamut from arms control to counter-drug operations in support of civilian authorities to—very importantly—peace operations. Under peace operations there are three subsets: support to diplomacy peacekeeping, traditional peacekeeping, and peace operations. But in future conferences and discussions, I think it would behoove us to keep non-international conflict and the law that applies there on the one hand and MOOTW on the other. I can already see that Jack Grunawalt has his hand raised so I suppose I accomplished my purpose.

Admiral Robertson: I just want to make one comment before that. I think that you need to excuse the panel on that because their subject was given to them and it has a parenthesis, *i.e.*, "military operations other than war—MOOTW."

Professor Jack Grunawalt, Naval War College: Let me carry that one step further. Dave, I am in full agreement. I would like to point out that we owe this conference to the benevolence of the Under Secretary of Defense for Policy who gave us the funding for it. That benevolency came with a few little things which "thou shalt include." As a matter of fact, Admiral Harlow and I were discussing this last night and we recognized at the very outset that we were pounding a round peg into a square hole. I could not agree more with you.

Colonel Burger: I have just one thought on that. In a situation like we have in the former-Yugoslavia today, we can really have several layers of conflict going on at the same time. If you get fighting between Croatia and Serbia, which are two States, I think that would be an international conflict. If you have fighting within Bosnia between the Bosnian Government and non-recognized bodies or entities like the Bosnian Serbians or the Bosnian Croatians, that could be a non-international conflict. Then, on another layer, you have the U.N. forces in there which are doing peacekeeping and they are not involved, and maybe they should not be involved, in a conflict at all. Then you have the difficult situation of NATO getting involved in support of the peacekeepers. You have to ask, what is their situation? I really don't have the answers to all of those things but it is a very complex situation and it presents problems in all of these different areas.

Professor Adam Roberts, Oxford University: I would like to agree with what Ted Meron said about the way in which principles applicable to international armed conflict may become extended in one way or another to a non-international armed conflict. I think that there are ways in which that can happen, additional to those specifically identified. One has to do with the former-Yugoslavia. We have seen the very interesting case of one officer with UNPROFOR, whether properly or legally or otherwise I do not know, surreptitiously emptying a large dam in territory held by Serbs, but retreating Serbs at the time, so that when they blew up the dam as it was known that they were threatening to do, it would not in fact either destroy the dam or flood people lower down the valley. This was an entirely successful operation, a remarkable piece of environmental protection extended by international forces to an internal conflict.

Then, of course, one has the case of the application of law to and by U.N. peacekeeping forces, and their acceptance historically, that the international rules governing the conduct of armed conflict do apply to U.N. peacekeeping forces. They also, of course, apply because the individual countries providing contingents are bound by international conventions, and their internal military disciplinary systems reflect those conventions.

So there, too, one has an example of the way in which rules developed for international armed conflicts may become applied through the presence of U.N. forces, at least in some degree, in non-international armed conflicts. Added to this—and one forgets this at the time of the terrible conflict in the former-Yugoslavia—there have been many cases of non-international armed conflicts in which one party or another or both have agreed to a greater or lesser degree to apply the body of international rules governing international armed conflicts.

Professor Paul C. Szasz: Let me comment a bit on the applicability of international humanitarian rules to U.N. forces. The question has been raised about whether or not the U.N. should become a party to the Geneva Conventions and Protocols. This has been resisted by the Legal Office of the U.N., of which I was a part at the time, on two basically formal grounds. One is that the Conventions do not foresee participation by international organizations, and therefore, their final clauses would have to be changed. The other is that the U.N. is not in a position to fulfill all the responsibilities of a Protecting Power, therefore, it should not become party to the Conventions.

The other reason given, that has just been mentioned, is that the U.N. does not have its own armed forces. It always uses the forces of member States, which are bound by the customary and treaty rules. This could change. In theory there could be U.N. forces *per se*, but as yet there are no plans thereof.

This having been said, the U.N. also considers that it is institutionally bound by international customary law. So to the extent that rules have been embodied in customary law, as is generally asserted about the Hague Conventions and the 1949 Geneva Conventions, they also bind the U.N. Secondly, the U.N. would be bound by resolutions or rules that are promulgated by competent U.N. organs.

Like the Universal Declaration of Human Rights, which was promulgated by the General Assembly and is addressed to "all organs of society," therefore including the United Nations, other conventions developed under the auspices of the United Nations, and endorsed by the General Assembly, will normally be considered as binding on the United Nations. I thank you very much.

Professor Meron: In the case of Nicaragua, the International Court of Justice suggested a sort of a piecemeal type of approach. Those aspects of the conflict which related to the relations between the Contras and the Sandinista Government would be governed by those rules of international humanitarian law which apply in internal conflicts. Those parts of the conflict, if established factually, which pertain to the intervention by the United States and the Sandinista Government, would be governed by those rules of international humanitarian law that apply in international armed conflicts.

Now the problem with this sort of approach is that it would create a structure of truly Byzantine complexity. People who are law of war experts, and military officers and international lawyers, would find it extremely difficult to dissect the various aspects of the problem in which they are concerned in order to be certain whether it is one set of rules or the other set of rules which is applicable. As regards the conflict in Yugoslavia, starting with the Bosnia War Crimes Commission Report, and continuing with what I consider to be the views of the Security Council, the United States Government and others, the approach was that we have to look at the entirety of the conflict. When we look at the ensemble of the conflicts

in Yugoslavia, at least after a certain point in time, and as practical people, people who have to apply common sense to the solution of problems, we regard that conflict as international.

I would suggest that although the NATO forces, or the peacekeepers involved in military operations in this conflict are, of course, not technically parties to the conflict, to the extent that they resort to military force, the approach exemplified by Colonel Burger makes a lot of sense. In this situation it does make sense, at least pragmatically, for them to apply the laws governing international armed conflict, including protection of the environment. So the context dictates, up to a point, the selection or choice of the applicable norms that should be applied by entities that are not technically parties to the conflict yet participating in armed hostilities. I am saying so in defense of perhaps Professor Grunawalt. Perhaps this connection and the title of this panel, although not logical, I grant you that, of non-international armed conflicts and operations other than war, does make, on practical grounds, a certain amount of sense.

Admiral Robertson: I might add one point to that. I think that many of you are familiar with the on-going work of Professor Grunawalt's organization here at the Naval War College. Not only is he preparing a manual for use by the armed forces, but also he is lecturing throughout the world on the subject of the rules that are found in that manual, on ROE and that sort of thing. That brings to mind what was mentioned a couple of times yesterday—that we have built into our armed forces an ethic and a culture of respect for those rules. If we can spread that broader, throughout the world, we will have accomplished many of those things that are in the nine objectives that were referred to by Professor Meron.

I am afraid that we have run out of time, but I will give our panelists one last opportunity for a summation. No? Then thank you very much. We are adjourned.

PART SIX

LUNCHEON ADDRESS

Chapter XXII

Luncheon Address
Environmental Security

Mr. Gary Vest

Professor Grunawalt: I would like to take this opportunity to introduce our luncheon speaker, Mr. Gary Vest. He is Principal Assistant to the Deputy Under Secretary of Defense for Environmental Security. His prior positions and his current responsibilities demonstrate the enormous breadth and range of his span of control. A graduate of the University of Idaho, Mr. Vest also holds a Masters Degree from the University of Washington. He has been with the Government for a considerable number of years.

I want to briefly mention his general areas of current responsibility. He is involved in the process of establishing policy in this general area and overseeing the implementation of that policy. Again, if you look at his subsets of responsibility, not only with respect to the environment, but concerning safety, occupational health, explosive safety, and fire emergency, it is a very broad mandate indeed. He is currently, I underscore that word "currently," co-chairman of not one, but three separate NATO environmental groups. He also chairs the Defense Environmental Safety and Occupational Health Policy Board. He chairs the Defense Environmental Security International Activities Committee. There is not much concerning our subject that does not properly fit within the scope of his committees' consideration. So without further ado, it is my pleasure and privilege to invite Mr. Vest to address us. Mr. Vest.

Mr. Gary Vest - Principal Assistant to the Deputy Under Secretary of Defense for Environmental Security

Thank you very much, it is indeed a pleasure to be here. As we were visiting over lunch one of the things that I commented on was how important an event like this is because we are in an evolutionary process of dealing with the environment and defense. It may well be that the last real step in that process is at some point in the future, to come to grips with the topic that you are addressing.

Today I will provide: one, an overview of what we are doing in our government in terms of defense and the environment; two, a bit of meaning to the terminology "Environmental Security"—which is the label under which we put all these

things; three, an overview of our relationships out in the world, our relationships with other countries in a defense and environmental context; and, four, a few stories about some things that are actually going on.

Your principal question here is, "Do we need more law in this area and if so, what would it be." At the outset I will offer an opinion that before we embark on a course of creating a lot more law, we ought to look carefully at what law exists and how it should actually apply.

We probably do not fully understand that, even as we go about our peacetime operations. It is very important to look at the present in the context of history. Nineteen Hundred and Seventy was sort of a watershed year in this country, and I think it is fair to say, in the world. There was an event in 1970—April 22 to be exact—called Earth Day. I was in a rather interesting situation at that time. I was an officer in the military of the United States, but I was also very actively involved in the "environmental movement." In April of 1970, you did that sort of thing at some peril because military folks in this country were not too enamored with the left-leaning liberalism of the environmental activists and the environmental activists who often were also doubling as anti-war activists. Certainly this did not have any comfort with the military.

So in 1970, the military and the environment were about as far apart as possible. Environment in the United States Department of Defense was basically non-existent. There was no program, there was no budget, there were no professionals, there was no body of policy. Now, 25 years later, the United States Department of Defense has in excess of a $5 billion annual environmental budget. I submit that fact as representative of a fairly substantial cultural transformation.

There were many reasons for that change, not the least of which was the United States Department of Defense responding to a body of law. In responding to the expectations of the American people, we have evolved very effectively over the past 25 years. I believe that what I am about to say is true. There is probably no environmental program in the Federal Government today that can equal that of the United States Department of Defense. It is exceptional. And, we have not overlooked the international dimension of the environment.

That $5 billion annual effort is predominantly a domestic involvement. In 1980, with our NATO colleagues, we began to look at this issue of environment and defense. There was a conference in Munich on defense and environment where we came together to begin looking at where the environment fits into the NATO equation. During the 1980's, we found that environment was becoming a constraint to operational capability and readiness in Europe. Most specifically, in Germany; aircraft noise, artillery noise, maneuver damage, etc.

We found that those who did not believe in the NATO mission structure would use the environment as a means to get at that NATO capability. So, within the Alliance, we began to address those environmental issues. By 1985, we had a

specific group devoted to aircraft noise. Eleven years later, it still meets and I chair it.

In the late 1980s, we began to really understand where the environment and defense fit when a colleague from Bonn told me that there were low-level discussions between East and West German officials on mutual reductions of aircraft noise in the FRG and the GDR. That was before the demise of the Soviet Union and the dissolution of the Warsaw Pact.

On the eastern side, they were concerned about the burden that they were bearing with the Soviet aircraft. On the western side, there was concern with the Sending States' activities. By 1990, in the NATO context, we were very concerned about what the host-nation laws were. What were the expectations of the host nations regarding NATO forces environmentally? So we created another group called Defense Environmental Expectations. We just concluded that effort last week in the U.K.

We set out to identify, catalogue, and characterize environmental laws and regulations of all the NATO countries that would apply to NATO activities—peacetime operations, exercises, or whatever. We did not stop with the legal part; we also looked at public expectations because that is very important. What do the citizens expect?

We mounted, in that effort, an extensive education and training component. We drafted the only existing NATO environmental policies, which went before the North-Atlantic Council and were adopted two years ago. We created a basic code of environmental conduct within NATO for commanders. We produced videos. We produced all manner of education and training materials. What we were about was changing, or attempting to change, the cultures of the militaries of NATO. Looking back to 1980, there were very few environmental programs in the NATO countries. In keynoting a NATO conference on the environment and defense last week in the U.K., I said, and I said with confidence, that, "The NATO environmental work related to defense is the model."

That brings a vision. If you are concerned with the environment, if you are concerned with sustained peace and stability, you should look at the military. Because if you aggregate the militaries of the world, you have probably put into a single basket or bucket the single greatest negative or positive force for the environment in the world. For every military that you are able to change, to move them away from not caring, with no commitment to the environment, the further you move them to the neutral, and once you move them over to the positive, you have made a tremendous difference.

That does not take a lot of money. We know from experience that simply changing the way you view things, the way you do things, in terms of environment and defense, can make tremendous advancements. Moreover, this does not detract from your operational readiness or your capability to do the mission.

When NATO reached out to its former foes, environment was a major part of that outreach. The U.S. European Command began a military-to-military program to reach out to all of the former-Warsaw Pact countries. Early on, the environment became part of that military-to-military program because in those countries there was a growing awareness that the militaries of the former-Warsaw Pact had to deal with their citizens who had begun to embrace the environment. Thus, a lot of the military-to-military teams were environmental.

We saw, as time went along, environmental matters coming into the Partnership for Peace proposals. We are finding that if you are interested in democratization, environment and defense is perhaps one of the best avenues, best laboratories, to work for democratization because the militaries of the former-Soviet Union and Warsaw Pact really were not used to working with civilian agencies. They were unaccustomed to paying attention to their public. They did not work on a constructive basis with state and local government.

We find, as we work with those countries—work with the military—much of what we are doing is focusing on policy concepts, methodology as to how the military functions in a democratic arrangement. We find that we are a formidable force in that process.

Based on what has happened in this country during the 1970s, and with our NATO friends during the 1980s, we are now looking to the 1990s. We eventually expect to make a tremendous impact in Central and Eastern Europe on these matters. Additionally, we are looking beyond Europe with an initiative in the Pacific.

In January, as part of a trilateral arrangement with Australia and Canada, I approached Admiral Macke, Commander in Chief of the Pacific Command, with the proposal that we, the three countries and Admiral Macke, host the Defense Environmental Conference for the Pacific and Asia. I think it is fair to say that Admiral Macke is not an environmentalist, but his reaction was instantaneous and positive. "Yes! Let's do that."

Because, as I read that, he understands that in the Pacific Command area of responsibility, environment and defense are indeed very related. The militaries of the Asian and Pacific countries are facing a new set of requirements, new expectations, and we can help a great deal. So our strategy in the Pacific will be to bring 45 nations together next summer with representatives from both the defense and the environment establishments to talk about defense and the environment in the Pacific. We will showcase such things as coral reefs. There is an international coral reefs effort underway and the question you have to start asking is where does the military fit in terms of coral reefs? From my dealings with the Australians, I know that the Australian military understands that pretty well. We have a lot to learn. We will be doing a major exercise in Tinian later this year, and the protection, the preservation, and the care of the coral reefs will be a major part of

that exercise. Going back around the other side of the world, next year there will be a major environmental component in the BALTOPS naval exercise in the Baltic Sea. So, increasingly what we are doing nationally, as well as multilaterally, is bringing to bear these environmental considerations in our activities.

I would like to discuss our basic concepts and beliefs relative to environmental security in the Department of Defense. We started with the perspective of threat. We are a military organization, and it is easiest for us to deal with things when we express them in terms of dealing with some sort of threat.

We went on to express these threats at three levels. The first was global. These are simply examples of things that are of interest to us, or that are going to affect us. For example, the United States military was on the U.S. team that negotiated the Montreal Protocol. The Montreal Protocol has had a significant impact on the United States Department of Defense. We recognized, at the outset, that we had to be part of it and deal with it very aggressively or we would become a victim of it.

We believe there are several regional threat considerations. They have different dimensions, but when we start thinking of regional environment, we also start thinking in terms of where does environment fit into the conflict equation. To what extent are environmental phenomena, factors? Do they directly or indirectly affect stabilities of nations and peoples? In other words, to what extent might they be the cause of conflict or war? So much of what we are debating and thinking about today is what are those forces? Which ones should we be paying attention to in a preventative mode rather than having to deal with them after the fact.

There are also national threats. These threats tend to be more of the traditional things that we deal with in the military in our environmental program.

Now, from that very basic threat structure, we put forward six or seven fundamental statements of environmental security and mission. The first, and this is very fundamental to our view, is that our mission must be performed in an environmentally responsible, safe, and helpful manner. That is not optional, certainly domestically. It gets a little murkier internationally, and I will speak to that in a moment in terms of how we handle it internationally.

Perhaps one of the most important statements relative to environmental security is this; militaries simply cannot function without adequate access to land, water, and air to conduct their missions. As I learned from the German experience, and we have encountered it throughout the United States, when you are not attentive to your environmental responsibilities, you begin to run a fairly high risk of either having your access eliminated or significantly abridged; and ultimately, you simply cannot do the mission.

This leads us to making strong statements and strong commitments in terms of environmental compliance, environmental cleanups, and in dealing with the environmental aftermath of the Cold War; being good stewards of the national

and cultural resources entrusted to us. You can go to any number of countries today and find that some of the best cared for and preserved areas of national and cultural interest are those that have been controlled by the military. I have even seen it in former-Warsaw Pact countries. The Czech army did an absolutely superb job of maintaining the environment during the Soviet era at a major training area in the Czech Republic, probably one of the best areas in the country in terms of preservation. I was in Australia recently, visiting some areas which had been completely denuded and destroyed, but now that the military has got them back. They are recovering to the extent that they are some of the finer tropical rain forest-types of environment.

We also need to be heavily engaged in pollution reduction. There are many examples of where the militaries of the world can, in fact, become very much the leaders in pollution reduction.

Environmental security is about protecting; national security defense is about protecting. We have a mandate, a responsibility, to do those things to protect our war-fighting assets, people, equipment, and facilities. There are many threats to them that if not dealt with will adversely affect that capability. We, in environmental security in the Department of Defense, are actively engaged in furthering the thought process concerning this conflict equation of which I have spoken.

We have people involved in counter-proliferation. Recently, they came to me and said that, "We really need to be working with you because what we are now beginning to realize is that a very important part of the proliferation equation is the environment." It figures in on the demand side of the equation. To the extent that environmental conditions or forces are generating a demand for weapons in various countries or regions we need to deal with that.

Looking ahead, we must be prepared for tomorrow's challenges. In our government, we have a responsibility to bring, as best we can, defense and environmental security considerations to bear on the bulk of national security policy. A number of the positions of our government that are developed for international treaty negotiations on the environment are actually driven out of the National Security Council. They are not coming from the State Department; they are not coming out of the Environmental Protection Agency. That is a very important message. We view international conventions and treaties on the environment as a major national security consideration.

The Basel Convention, London Dumping Convention, and other agreements impacting the environment are of high interest from the Defense perspective. We also have a responsibility to look at how the assets of the United States Department of Defense can be used as an instrument of national and environmental policy. Some months ago, Defense Minister Jørgen Kosmo of Norway approached Secretary Perry and requested U.S. assistance in dealing with the Russians on their

environmental behavior in the Arctic, particularly on the Kola Peninsula and the Barents Sea, where the disposition of the nuclear submarines sitting in the port of the Northern Fleet is a major interest to the Norwegians for obvious reasons. The Norwegians had been working that issue through their foreign ministry to not much avail. At Defense, we mounted an effort which resulted in an effective trilateral dialogue with the Russians on their behavior in the Arctic with these military assets. That is an example of how the United States Department of Defense plays in those arenas. We are also leading the U.S. delegation to a NATO group on cross-border contamination, which is focusing on the defense or the military role in pollution risks associated with crossing borders in Central, Eastern, and Western Europe.

Also of note is the United States Navy's involvement in NATO's Special Working Group Twelve (SWG 12), the environmentally-sound ship. As we look to the future in terms of our ability to function as a Navy, increasingly we understand that we have to make major advancements in the manner in which we handle the environment on our ships. Not doing so can produce constraints that are simply unacceptable.

We have been asked to prepare a cooperative program with the Baltic nations. The United States Department of Defense, working with the governments of Estonia, Latvia and Lithuania, is in the process of building a cooperative program; to build an environmental infrastructure for the militaries of the three countries to deal with the environmental aftermath of the Soviet presence, and also, to put them in a position of leadership in their countries to deal with current environmental hazards.

We recently signed an agreement with Poland for environmental cooperation. The Polish military have an aggressive program today for practical reasons. They need to meet European Union environmental requirements, and they recognize that their military has to be part of that. The Polish military has an aggressive environmental compliance program, particularly in clean air and clean water issues. We are assisting them.

We have been engaged with the Czech Republic providing information and assistance, once again to deal with the environmental aftermath of the Cold War.

Several months ago, we signed an agreement with the Russians. In that agreement, amongst other things, Russia and the United States agreed to look together at their respective intelligence capabilities—the full range of sensors; space, aerial, terrestrial and aquatic—and apply them to environmental problems. I will be meeting next week with the Russians to put together the details on implementation of that agreement. We will be doing projects to apply that capability in the United States, in Russia, and in third world countries to a whole different brave new world. Very, very interesting. Are there any questions?

Professor Myron Nordquist, Naval War College: Have you encountered in these other countries, outfits like yourself? Basically, you are dealing with new governments in the former Soviet Union. Organizationally, do they have anything akin to the environmental organization that you run in the Department of Defense?

Mr. Vest: The question is, "are there comparable capabilities in other governments?" We are probably the largest and most expansive; there is no question about that. Certainly, some of the NATO countries have very fine programs. What is really surprising is how far the Russians have come. The Russians today have a Lt. General in the Ministry of Defense who runs their Department of Ecology. It is getting bigger. And what is very interesting is that the Russians, in the agreement that I just spoke about, actually said they have the money programmed to do their part of it, which is kind of a surprise, too. The Russians have been surprisingly candid about their problem and the nature of it. They are ramping up considerably.

When I was in Poland recently, the Polish military introduced a two-star General who has in his portfolio environment and about half a dozen Colonels who are running environmental organizations within the Polish military.

The Czech military, as I indicated, has been involved in environmental matters for quite some time. About 12 years ago, they brought in an environmental professional, a Ph.D., gave him the rank of Colonel, and he has been building environmental programs ever since. They are holding international conferences on defense and environment in the Czech Republic now. We are seeing a lot. In the Pacific, the Koreans recently approached us and said, "We have to do it, can you help us?" There are a lot of good signs in that regard.

Captain Stephen A. Rose, JAGC, U.S. Navy, U.S. Atlantic Command: Mr. Vest, at the beginning of your presentation you mentioned the $5 billion a year budget. What reservations or difficulties do you see ahead to sustain that program? A key to a lot of this seems to be reliable income in order to do what you want to do.

Mr. Vest: The Defense environmental budget peaked about 2 years ago. That $5 billion was about $5.2 billion two years ago; in FY 89 it was about $1.2 billion. What is very interesting is that the Defense Environmental Security budget exploded during the tail end of the Reagan Administration and during the Bush Administration. It has actually declined the last two years. It has more or less found its level; its going to stay around $5 billion.

At the beginning of this calendar year, the new majority in Congress had staked out that $5 billion program, in some people's mind, for total elimination. Others

favored massive reduction. At most, we will lose $135 million of our $5 billion request this year. We are going to emerge from this authorization/appropriation process probably the least adversely affected of any agency in the Federal Government. Why is that? I submit to you it is because when you understand defense and environment you can not reject it. If you do not understand it, you can engage in a lot of rhetoric and say you cannot do it. When people do begin to understand it, which is what we have done with the Congress, it sustains itself. The other thing that I would say is that today we have an incredibly good quality program. Once you look at it and understand it, you have to acknowledge it. I do not see us having much difficulty in that regard, once again because of the quality and because when you understand it, it is not that debatable.

Professor Bernard Oxman, University of Miami: I was struck by your comment on the active participation of the Department of Defense and general international environmental associations. It raises a question in my mind of what assumptions you and the Department of Defense are making when you participate in the formulation of U.S. policy and negotiation of these treaties? I can think of three possibilities that I am addressing now, not ordinary operations but armed conflict. One is that international environmental negotiations do not affect you in armed conflict. Second, is that they do affect you in armed conflict to the extent consistent with military necessity. Third, they limit you in armed conflict, even if compatible with military necessity. I am wondering, have you thought through those questions when you participated in negotiations?

Mr. Vest: It is fair to say that the real straightforward answer to your questions is, "no." Now let me explain. We are, in my opinion, in an evolutionary process and people are continuing to try to better understand where this environment thing fits into the whole range of national security. As I said in my remarks, we have gone through a 25-year period where we have successfully come to grips with that in terms of peacetime operations. Outside the United States, for example, we created several years ago a document called the Overseas Environmental Baseline Guidance Document which was a codification of U.S. requirements, good practices that our people together thought made good sense to govern our behavior around the world. We have taken that and created what are called Final Governing Standards for any nation where we have a presence. It is, basically, a definitive environmental code of conduct for the operation of installations, exercises, etc. That is the baseline.

We have also created an auditing program to audit our environmental behavior in those countries. For example, I remember giving our Audit Manual to my opposite number in the United Kingdom Ministry of Defense. They did not have anything like it. We knew more about how to comply in auditing environmental

requirements on the military in the U.K. than the British military did. It has been my observation that, historically, our involvement in treaties is more to look at the things that would cause us a problem. You asked if we considered whether that treaty would impose an unacceptable constraint, either on peacetime operations or potentially other operations? I think it is fair to say that dimension will always be there because that is responsible behavior. We are now getting to the point in some of these negotiations where we look beyond that. We, as military people, are saying okay, what are the things that can be in these treaties and in these international conventions that are generally positive along the lines of the concepts that I was putting forward here. That is another dimension.

I have not seen much evidence of us really addressing the conflict part. As you look along this continuum, this evolution probably will come to grips with the environment in the conflict situation a little bit further out there. We really must figure out some of these intermediary things first.

Now, as a practical matter what is happening, and again this is my observation, Desert Shield, Desert Storm, Haiti, Somalia, wherever, our behavior in those activities environmentally is quite different than it would have been ten years ago. Is that because of some treaty, some convention, some stated policy pertaining to those kinds of operations? No, but what has happened is that the culture has changed. When our people go to war, when our people go into an exercise, they take their whole culture, their whole process with them. They do not go brain-dead on the environment when they go to Bosnia; they really do not. When we get ready to leave Haiti, what will be one of the major issues the last week we are in Haiti? What are we going to do with the hazardous material down here? That is how our military is thinking; it is in their culture.

Rear Admiral Horace B. Robertson, JAGC, U.S. Navy (Ret.): How much of that $5 billion is tied to base closings?

Mr. Vest: About $400 or $500 million.

Professor Grunawalt: As a follow-on to Admiral Robertson, about how much of that would you say would fall into what we generally call the R&D arena, looking to the future for pollution abatement and all these other kinds of things with respect to the environment?

Mr. Vest: That, I do not have at my fingertips. It is a couple hundred million in the technology area. Speaking of technology, our international arrangements focus a lot on environmental technology because what we are trying to do is to use the

work of others, and of course, provide the results of the work that we are doing to others.

We have a very productive and effective environmental technology data exchange with Germany. Every 8 to 12 months, in one country or another, there is a gathering of sometimes 60 to 100 scientists; military environmental scientists of the two countries; its very effective. Any other questions or comments? Thank you.

Professor Grunawalt: Thank you Mr. Vest. I am confident that all of our conferees benefitted enormously from your remarks. Frankly sir, I am personally left with a deeper sense of optimism about our environmental future than I had before. Thank you for sharing that vision with us.

PART SEVEN

PANEL V: STATE RESPONSIBILITY AND CIVIL REPARATIONS—THE CURRENT LEGAL FRAMEWORK

Chapter XXIII

State Responsibility and Civil Liability for Environmental Damage Caused by Military Operations

Professor Christopher Greenwood*

I. Introduction

The principal purpose of this paper is to consider the extent to which a State incurs responsibility under international law for acts of its armed forces which cause environmental damage, and to examine whether State responsibility provides a sufficiently effective means for enforcing the law regarding protection of the environment in armed conflict. The emphasis will be upon international armed conflicts, although there will also be a brief discussion of the position in internal armed conflicts and in certain types of United Nations operations. As a secondary concern, the paper will also consider the possibility of a State, or individuals or agencies acting on behalf of a State, being held liable in domestic law for damage to the environment caused by military operations.

Part II of this paper will review the principles of State responsibility for environmental damage in the context of the law of armed conflict. Part III will then examine the application of those principles by the United Nations Compensation Commission in the case of Iraq. The possibility of State responsibility for environmental damage occurring in internal armed conflicts and United Nations operations will be discussed in Part IV. Part V will consider certain issues of civil liability under domestic law. Finally, Part VI will advance certain conclusions regarding the effectiveness of State responsibility and civil liability in protecting the environment.

II. The Principles of State Responsibility for Environmental Damage in International Armed Conflict

A. State Responsibility and International Environmental Obligations

The starting point for this inquiry is that where the agents of a State cause environmental damage by conduct which is contrary to a rule of international law binding upon that State, the State incurs international responsibility. It is a long established principle of international law that 'every internationally wrongful act

of a State entails the international responsibility of that State'.[1] According to the International Law Commission,

> There is an internationally wrongful act of a State when:
> (a) conduct consisting of an act or omission is attributable to the State under international law; and
> (b) that conduct constitutes a breach of an international obligation of the State.[2]

This principle applies to breaches by a State of its international obligations relating to the environment, just as much as it does to breaches of other international obligations.[3] Indeed, the International Law Commission has categorized 'a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment' as conduct which may give rise to an international crime.[4] Whether the Commission's attempt to create a concept of State crimes separate from other breaches by States of their international obligations will prove acceptable, and whether it will actually make any difference to the substantive law (as opposed to such issues as the standing to bring a claim), is debatable. What matters for present purposes is the clear recognition that a State incurs responsibility under international law for the breach of its environmental obligations.

It is, however, widely recognized that as a means of ensuring protection of the environment, State responsibility is subject to severe limitations.[5] While there have been cases in which a State has brought a claim for environmental damage caused to its own territory or interests, it is unclear which State, if any, has standing to maintain an international claim regarding damage to the global commons.[6] The concept of an *actio popularis* has not yet gained sufficient acceptance in international law. Moreover, although this problem may be eased if the concept of causing serious pollution as an international crime comes to be accepted (since every State could then claim to be entitled to enforce the obligations concerned), this effect has yet to be felt and may be outweighed by other problems inherent in the concept of State crimes. In addition, proof of causation is often particularly difficult in environmental cases. Finally, there is considerable argument about the standard of responsibility (strict, absolute or fault based) in many of the treaties on the environment. The result is that State responsibility, while not to be dismissed, is not regarded as the most important means of enforcing international environmental law. Instead, attention has tended to shift towards preventive measures, such as the requirement to conduct an environmental impact assessment, and supervisory action by international organizations.

It should also be mentioned that the International Law Commission has adopted a series of articles, distinct from those on State responsibility, which deal with the notion that a State may incur liability for the injurious consequences of lawful acts.[7] Whereas State responsibility is based upon the thesis that a State

incurs certain obligations because it has done something unlawful, liability under the new articles will not be dependent upon the act which gives rise to the injurious consequences being characterized as unlawful. The new concept is likely to be of particular significance in the environmental field but has proved controversial.[8]

B. State Responsibility and Obligations under the Law of Armed Conflict

The armed forces of a State are clearly one of the 'organs' of the State and when members of the armed forces of the State act in their official capacity, their conduct is attributable to the State. If, therefore, that conduct is contrary to an international obligation of the State, then the responsibility of the State is engaged. It was never contested, for example, that France incurred international responsibility as a result of the actions of French special forces in destroying the vessel *Rainbow Warrior* in New Zealand in July 1985.[9]

The fact that the State is engaged in an armed conflict and that the obligation which is violated is one derived from the law of armed conflict, rather than the law of peace, does not in any way prevent the State from being held responsible. Although the law of armed conflict is unusual in international law in holding individuals criminally responsible for violations of its rules, 'individual responsibility is additional to, and not exclusive of, the responsibility of the governments concerned.'[10] The responsibility of the State for violations of the laws of armed conflict committed by its armed forces is expressly provided for in Article 3 of Hague Convention No. IV, 1907, and Article 91 of Additional Protocol I, 1977, which are discussed below.

There are several rules of the law of armed conflict which expressly concern the environment and the violation of which will entail international responsibility on the part of the State concerned:[11]

(1) the Environmental Modification Treaty, 1977, (ENMOD)[12] prohibits the use of environmental modification techniques having widespread, long-lasting or severe effects as a means of warfare;

(2) Articles 35(3) and 55 of Additional Protocol I,[13] prohibit the use of methods and means of warfare which are intended or may be expected to cause widespread, long-term and severe damage to the environment;

(3) customary international law is widely considered to include a prohibition on unnecessary and wanton destruction of the environment and a requirement that a belligerent show due regard for the protection of the environment.[14] Some commentators also maintain that the proportionality principle applies in this context, so that a military operation is prohibited if it is probable that it will result in damage to the environment which is excessive in relation to the military gain which the operation is expected to produce.[15]

In addition, a number of rules which are not specifically directed towards environmental protection have important repercussions for the environment. Chief among these are the following:

(4) the prohibition on wanton destruction of property, that is to say, destruction not demanded by the necessities of war;[16]

(5) the prohibition on the use of chemical and biological weapons, both of which are capable of devastating environmental effects;[17]

(6) the restrictions placed on the use of mines, booby-traps and incendiary weapons;[18]

(7) the prohibition of attacks on objects indispensable to the survival of the civilian population, such as foodstuffs and drinking water;[19] and

(8) the prohibition (except in certain narrowly defined circumstances) of attacks upon works and installations containing hazardous forces, such as nuclear electrical generating stations.[20]

Conduct which is imputable to a State engaged in an international armed conflict and which is contrary to any of these rules will engage the international responsibility of that State, provided, of course, that that rule is applicable to that State in the conflict in question.[21] In addition, it is open to argument that some of the provisions of environmental agreements not specifically concerned with armed conflict remain applicable in armed conflict and thus impose further restraints, the disregard of which by the armed forces of a State may engage that State's international responsibility. A belligerent may incur international responsibility for damage to the environmental rights of another belligerent or a neutral State. The same difficulties exist here regarding standing to claim in respect of damage to global commons.

C. Special Features of State Responsibility in the Context of International Armed Conflict

In one respect, the concept of responsibility for violations of the law of armed conflict goes beyond the normal principles of State responsibility. Article 3 of Hague Convention IV states:

> A belligerent party which violates the provisions of the said Regulations shall, if the case demands, be liable to pay compensation. It shall be responsible for all acts committed by members of its armed forces.[22]

Similarly, Article 91 of Additional Protocol I provides:

> A Party to the conflict which violates the provisions of the Conventions or of this Protocol shall, if the case demands, be liable to pay compensation. It shall be responsible for all acts committed by persons forming part of its armed forces.[23]

In each case, the first sentence merely states the well established principle that a State is internationally responsible for the acts of its officials, members of its armed forces and other 'organs' of the State which are imputable to it. The actions of an organ of the State are imputable to that State if the organ in question was acting in its capacity as an organ of the State but not otherwise.[24] This principle has generally been given a broad interpretation, so that arbitral tribunals have held a State responsible for acts which were *ultra vires* provided that the soldiers in question acted, at least apparently, as organs of the State. Thus, the United States-Mexican Mixed Claims Commission held in the *Youmans* claim that:

> Soldiers inflicting personal injuries or committing wanton destruction or looting always act in disobedience to some rules laid down by superior authority. There could be no liability whatever for such misdeeds if the view were taken that any acts committed by soldiers in contravention of instructions must always be considered as personal acts.[25]

Nevertheless, the prevailing view is that, under the general rules of State responsibility, a State is not internationally responsible for wholly unofficial, private acts which it was not negligent in failing to prevent.

The second sentence of Article 3 of Hague Convention IV and Article 91 of Additional Protocol I thus go beyond this general rule by providing that, in the context of armed conflict, a belligerent State is responsible for 'all acts committed by persons forming part of its armed forces'. The use of the word 'all' suggests that responsibility under this provision extends to that category of wholly unofficial, unauthorized acts of members of the armed forces for which the State would not otherwise be internationally responsible. That interpretation is confirmed by the *travaux preparatoires* of the Hague Convention, the records of the Second Hague Peace Conference of 1907. The second sentence of Article 3 was the result of an amendment proposed by the German delegation to the Conference. Introducing the amendment, the German delegate, Major General von Gundell, identified the problem with which the amendment was designed to deal:

> The case most frequently occurring will be that in which no negligence is chargeable to the Government itself. If in this case persons injured as a consequence of violation of the Regulations could not demand reparation from the Government and were obliged to look to the officer or soldier at fault, they would fail in the majority of cases to obtain the indemnification due them. We think, therefore, that the responsibility for every unlawful act committed in violation of the Regulations by persons forming part of the armed forces should rest with the Governments to which they belong.[26]

It seems clear, therefore, both from the text and the drafting history, that the second sentence of Article 3 was intended to make a State responsible for all violations of the Hague Regulations committed by members of its armed forces,

even where those violations were completely unauthorized private acts. That has been the interpretation placed upon Article 3 by most commentators. Thus, Judge Freeman wrote that:

> ... Article 3, as I read it, declares that a State shall be responsible for all the acts of its soldiers which violate the provisions of the Regulations. No distinction is made between acts committed within the exercise of military duties and non-official acts.[27]

Professor Kalshoven has taken the same view:

> ... Article 3 is broader [than the general law] in that it encompasses all violations of the Regulations committed by persons belonging to the armed forces irrespective of whether these were done in that capacity or otherwise. The point is relevant because members of an armed force at war stand a greater chance than do other State organs of becoming entangled in ambiguous situations where it may be unclear whether they were acting in their capacity as an organ of the State. What, for instance, of the incidents that allegedly happened in the course of the invasion and occupation of Kuwait: can all acts of wanton brutality or savagery done by members of the Iraqi army be regarded as committed in that capacity?[28]

Article 91 of Additional Protocol I is in the same terms as Article 3 of the Hague Convention and was clearly intended to have the same broad scope. Where it may, perhaps, differ is that the draftsmen of Article 3 seem to have contemplated mainly direct claims by individuals, rather than State to State claims, for wrongs done by identifiable servicemen, rather than injuries caused by, for example, long range bombardment.[29] These limitations were clearly not envisaged when Article 91 of Additional Protocol I was adopted. Both provisions were drafted with claims by neutral States, as well as by belligerents, in mind. While the basic principle that a State is responsible for violations of the law of armed conflict committed by members of its armed forces is undoubtedly part of customary law, and thus applicable to violation of all rules of the law of armed conflict irrespective of their source, it is open to debate whether the extended concept of responsibility for wholly private acts recognized in Article 3 of Hague Convention IV and Article 91 of Additional Protocol I applies to breaches of rules not contained in those two treaties.

It follows, therefore, that a State which is a party to an international armed conflict will incur international responsibility for damage to the environment caused by acts of members of its armed forces if those acts are in breach of one of the rules set out in the preceding section of this paper. If the rule is contained in the Hague Regulations or Additional Protocol I, responsibility will be engaged even if the servicemen in question were acting wholly outside the scope of their official duties and this was obvious to all concerned. If, therefore, fleeing soldiers from an army in which all discipline had collapsed set fire to oil installations in

the course of looting and thus caused damage to the environment, this act would engage the responsibility of their State as a result of Article 3 of Hague Convention IV and, if applicable, Article 91 of Additional Protocol I, even if the State would not have been held responsible under the normal principles set out in the International Law Commission's draft.

Although there have been cases in which one belligerent has paid compensation to another (or to its nationals) for damage caused by violations of the laws of armed conflict—usually as a result of the treaties concluded at the end of the Second World War—effective reliance on the principles of State responsibility in this area have been rare since then. There have been a number of occasions on which a belligerent has paid compensation, usually without admission of liability, to a neutral State for damage caused by its armed forces. The United States, for example, received compensation from Israel for the attack on the *USS Liberty* in 1967 and from Iraq for the attack on the *USS Stark* in 1987. The United States also offered an *ex gratia* payment to the families of those killed when the *USS Vincennes* shot down a civil airliner in 1988 at a time when United States forces were engaged in fighting with Iranian forces.[30] On the whole, however, State responsibility has not proved a particularly effective means of enforcing the law of armed conflict.

D. State Responsibility for Aggression

It is important to bear in mind that State responsibility is also incurred when a State violates those rules of international law which prohibit recourse to force against another State, in particular Article 2(4) of the United Nations Charter. As a result, a State is liable, in principle, to pay compensation for damage, including environmental damage, caused by an unlawful resort to force. That is so even if the act which was the immediate cause of the damage was not itself a violation of the laws of armed conflict.

Suppose, for example, that a State invades its neighbor in circumstances which could not possibly justify a plea of self-defense, so that there is a clear violation of Article 2(4) of the Charter. In the course of the fighting which ensues, the armed forces of the invader destroy an installation which is a military objective (and thus a lawful target under the laws of armed conflict). This action causes extensive pollution but does not violate Articles 35(3) or 55 of Additional Protocol I, because the damage to the environment is not 'long-term', and does not violate any of the other principles considered in Part II.B, above, because the destruction of the installation was militarily necessary. In such a case, those individuals who carried out the attack would not be guilty of a war crime or grave breach of the Geneva Conventions; but the State could be held responsible for the damage because it was a direct consequence of the illegal invasion. State responsibility here flows from a breach not of the *jus in bello* but of the *jus ad bellum*. International claims on this basis have been very rare since 1945. The United Kingdom and Argentina,

for example, agreed in 1989 to make no claims against each other in respect of the 1982 Falklands Conflict, notwithstanding the clear illegality of Argentina's invasion and the scale of the damage to the Falklands environment caused by Argentine mining.[31] The outstanding exception is the response of the international community to the damage resulting from Iraq's invasion of Kuwait, which will be the subject of the following section.

III. The Responsibility of Iraq for Damage Resulting from the Invasion of Kuwait

Iraq's invasion of Kuwait was perhaps the clearest violation of Article 2(4) of the Charter between 1945 and 1990 and was condemned as such by the Security Council.[32] Although some of the more apocalyptic predictions regarding the effects of the Kuwait Conflict of 1990-91 on the environment proved to be exaggerated, there is no doubt that the conflict caused extensive damage to the environment in and around the Gulf.[33] These consequences are considered in greater detail in some of the other papers.[34] It is sufficient here to note that attention has tended to focus on three types of environmental damage:

(1) damage to the marine environment caused by the release of large quantities of oil by Iraq from the Sea Island Terminal in Kuwait;

(2) damage to the environment over a wide area resulting from the burning by Iraqi forces of over 500 oil wells in Kuwait; and

(3) land degradation caused by the aerial bombardment, the creation of minefields, the construction of other defensive fortifications such as trenches, and the land campaign. The conduct of both Iraqi and Coalition forces contributed to this category of damage.

A. The Jurisdiction of the Compensation Commission

The Security Council took an early position on the responsibility of Iraq for damage caused by violations of international law. Paragraph 8 of Security Council Resolution 674 (1990) reminded Iraq:

> that under international law it is liable for any loss, damage or injury arising in regard to Kuwait and third States, and their nationals and corporations, as a result of the invasion and illegal occupation of Kuwait by Iraq

and invited States to collect information about potential claims. Resolution 687 (1991), adopted after the end of the fighting, reaffirmed in paragraph 16 that:

> Iraq . . . is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign governments, nationals and corporations, as a result of Iraq's unlawful invasion and occupation of Kuwait.

Resolution 687 went on to provide for the establishment of a compensation commission to administer a fund from which claims against Iraq would be paid. The money to pay compensation was to come from a levy on Iraqi oil sales. Following a report from the Secretary-General on the implementation of this part of Resolution 687,[35] the Security Council established the United Nations Compensation Commission by Resolution 692 (1991).[36]

The Commission is not a court but a subsidiary organ of the Security Council, operating 'an essentially administrative mass claims system'.[37] In many respects it departs—sometimes radically—from the classical principles of State responsibility. Nevertheless, it is based, as paragraph 16 of Resolution 687 makes clear, on the principle that Iraq is internationally responsible for the damage caused by its unlawful acts. Its work, therefore, gives a rare and valuable insight into State responsibility for military operations. Moreover, the express provision in Resolution 687 for claims regarding environmental damage makes the Commission of particular interest in the context of this paper.

In view of the volume of claims—2.6 million claims for a total of approximately U.S. $174 billion had been filed by April 1995 and there are more to come—and the very limited funds so far available to it,[38] the Commission has given priority to claims by individuals. It has, however, given an indication of how it intends to proceed with the environmental claims. The overwhelming majority of the environmental claims are likely to be submitted by governments and international organizations. In Decision No. 7 (Revision 1) of March 1992, the Governing Council of the Commission held that payments were in principle available:

> with respect to any direct loss, damage, or injury to governments or international organizations as a result of Iraq's unlawful invasion and occupation of Kuwait. This will include any loss suffered as a result of:
>
> (a) military operations or threat of military action by either side during the period 2 August 1990 to 2 March 1991;
>
> (b) departure of persons from, or their inability to leave, Iraq or Kuwait (or a decision not to return) during that period;
>
> (c) actions by officials, employees or agents of the Government of Iraq or its controlled entities during that period in connection with the invasion or occupation;
>
> (d) the breakdown of civil order in Kuwait or Iraq during that period; or
>
> (e) hostage-taking or other illegal detention.[39]

With regard to environmental claims, the the Governing Council decided:

> These payments are available with respect to direct environmental damage and the depletion of natural resources as a result of Iraq's unlawful invasion and occupation of Kuwait. This will include losses or expenses resulting from:
>
> (a) abatement and prevention of environmental damage, including expenses directly relating to fighting oil fires and stemming the flow of oil in coastal and international waters;
>
> (b) reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;
>
> (c) reasonable monitoring and assessment of the environmental damage for the purposes of evaluating and abating the harm and restoring the environment;
>
> (d) reasonable monitoring of public health and performing medical screenings for the purposes of investigation and combatting increased health risks as a result of environmental damage; and
>
> (e) depletion of or damage to natural resources.[40]

The Commission has set a deadline of 1 February 1997 for filing claims for environmental damage.[41] It is impossible, therefore, to assess the size of these claims, although it has been suggested that Kuwait's claim in respect of the oil well fires may reach U.S. $170 billion on its own.[42] The Governing Council has adopted the following provision on the law to be applied by the Commissioners in dealing with claims:

> In considering the claims, Commissioners will apply Security Council Resolution 687 (1991) and other relevant Security Council Resolutions, the criteria established by the Governing Council for particular categories of claims, and any pertinent decisions of the Governing Council. In addition, where necessary, Commissioners shall apply other relevant rules of international law.[43]

B. The Basis of Iraq's Responsibility

Although the Commission has yet to deal with any of the environmental claims, a number of features of the system which has been established merit attention at this stage. First, the central principle in Resolution 687 and Decision No. 7 of the Governing Council is that the wrongful act which has engaged Iraq's State responsibility under international law is the illegal invasion and subsequent occupation of Kuwait, *i.e.*, the violation of Article 2(4) of the Charter and other norms prohibiting international aggression, not violations of the law of armed conflict. As one commentator has put it:

> . . . the key causal factor giving rise to liability is the unlawful invasion and occupation of Kuwait. Liability thus exists even in cases where the individual act of an Iraqi agent, taken in isolation, would not constitute a violation of international law.[44]

If, therefore, damage was caused by Iraqi soldiers in circumstances which did not amount to a violation of the law of armed conflict, Iraq would still bear international responsibility because the damage was a direct result of the illegal invasion and occupation of Kuwait. The responsibility of Iraq is thus considerably more extensive than the criminal responsibility of individual Iraqi servicemen, who were guilty of war crimes only if they acted contrary to the laws of armed conflict and who are not penalized merely because their State was guilty of aggression.[45] There is, however, an exception to the principle that Iraq is liable for the consequences of aggression irrespective of whether the laws of armed conflict were also violated in the case of claims by members of the Coalition armed forces. The Governing Council has decided that Coalition servicemen are entitled to compensation only if they were prisoners of war and suffered treatment contrary to international humanitarian law.[46] Claims by Coalition servicemen for injuries sustained as a result of the pollution caused by the oil well fires are therefore excluded.

The fact that Iraq's responsibility is based upon its violation of the *jus ad bellum* rather than the *jus in bello* may prove to be of considerable importance in respect of the claims for environmental damage. If claimants were required to show that the environmental damage was caused by acts which violated the law of armed conflict, they would have faced a difficult task. Iraq was not a party to ENMOD or Additional Protocol I. Since the provisions of ENMOD and the environmental provisions of Additional Protocol I are probably not yet declaratory of customary international law,[47] those provisions were not applicable. While a good case can nevertheless be made that much of the destruction committed by Iraq in the oil fields and the release of the oil slick from the Sea Island terminal were contrary to the prohibition on wanton destruction, it is far from clear that all of those acts of destruction lacked a justification in military necessity. If it was decided that even some of those acts were not contrary to the law of armed conflict, it would have become necessary to show that any damage in respect of which a claim was made was caused by those acts which were unlawful, rather than by those which were not, or to have persuaded the Commissioners that they could apply some concept of apportioning liability. The decision that Iraq is to be held responsible for environmental damage directly resulting from the invasion and occupation (particularly when one considers the implementation of that decision in paragraphs 34 and 35 of Decision No. 7) avoids the need to decide those questions.

C. The Requirement of 'Direct' Loss

Secondly, the requirement that damage or loss be a direct consequence of the invasion or occupation may prove a fertile field for legal argument and has already attracted controversy.[48] Although the reference to direct loss or damage is not a novelty, it has often given rise to difficulty in the past. The Arbitrator in a 1923 case, for example, said that "the distinction sought to be made between damages which are direct and those which are indirect is frequently illusory and fanciful and should have no place in international law."[49] Since proof of causation is frequently problematic in cases involving claims for environmental damage, it is likely that the requirement that damage be 'direct' will create particular difficulties for governments presenting environmental claims to the Commission.

The decisions of the Governing Council have, however, gone some way to clarifying the concept of directness in relation to such claims. Thus, paragraph 35 of Decision No. 7, which is quoted above, gives a clear indication of the types of loss and damage which are likely to be treated as direct consequences of the oil spill and the burning of the oil wells, both of which actions are clearly imputable to Iraq and were undeniably consequences of the invasion and occupation. The emphasis on recovery of the reasonable costs of the operations to clean and restore the environment, and of monitoring environmental damage and effects upon health, is particularly welcome.

So far as the damage caused by land degradation is concerned, the decision in paragraph 34 that Iraq is responsible for the direct loss and damage caused by the military operations of both Iraqi and coalition forces is particularly relevant. Although most of the damage done by the Coalition occurred in Iraq itself, and neither Iraq nor its nationals can present claims in respect thereof, some of the damage in Kuwait was caused by the Coalition or cannot readily be attributed to one side rather than the other. The decision to treat the Coalition's military operations as a direct result of the Iraqi invasion and occupation of Kuwait and thus to hold Iraq responsible for the damage which those operations caused is one of the more important consequences of the Security Council's initial decision that the basis of Iraqi responsibility was its violation of Article 2(4) of the Charter, rather than the laws of armed conflict.

D. Conclusion

It is clear that if it deals with the environmental claims, the Commission is likely to hold that Iraq is responsible for most of the environmental damage which occurred as a result of the events in the Gulf in 1990-91. Some claims will undoubtedly fail the 'directness' requirement. That will be so where, for example, it is not sufficiently established that atmospheric pollution some distance from Kuwait was in fact caused by the burning of the oil wells. Where causation is established, the position would seem to be as follows:

(1) Iraq is responsible for damage to the environment caused by the acts of Iraqi agents, irrespective of whether that damage involved a violation of the laws of armed conflict;

(2) Iraq is responsible for damage to the environment caused by acts of Iraqi servicemen, even if those servicemen were acting in a wholly private capacity, such as private soldiers looting and destroying property in their retreat. Such damage would still be covered by paragraph 34 (c) or (d) of Decision No. 7, as well as by Article 3 of Hague Convention IV if the destruction was contrary to the rules stated in the Hague Regulations;

(3) Iraq is responsible for damage to the environment the proximate cause of which was Coalition military operations which were lawfully directed against Iraq in order to end its illegal occupation of Kuwait, *e.g.*, a lawful air attack against a military objective in Kuwait which resulted in air or marine pollution;

(4) It is less clear whether Iraq can be held responsible for environmental damage caused by Coalition operations if the act which was the immediate cause of the damage was itself a violation of the laws of armed conflict, *e.g.*, if pollution was caused by a Coalition attack which did not observe the customary law requirements of protection of the environment or which involved wanton destruction contrary to Article 23(g) of the Hague Regulations. While there may not (and should not) have been any cases in this category, it is suggested that, as a matter of principle, an aggressor should not be held internationally responsible for unlawful conduct on the part of its adversaries, not least because that would actually be contrary to the objective of ensuring that State responsibility operated to ensure compliance with the law, rather than simply to provide compensation for the consequences of its violation. Unlawful Coalition conduct should not, in other words, be treated as a direct result of the Iraqi invasion or occupation of Kuwait.

Finally, while it is to be hoped that the Commission will eventually resolve the environmental claims and have the funds to ensure that its awards are paid, it must be questioned whether that will actually be the case. By April 1995, the Commission had approved awards of U.S. $870 million but had been able to arrange payments totalling only U.S. $2.75 million. As governmental claims with a late filing date, the environmental claims will, in any event, come towards the end of a very long queue. Moreover, the size and complexity of these claims suggests that many of them may not be resolved by the Commission until well into the Twenty-First Century. Even then, there may not be the money to pay any awards which are approved. If Iraq were to resume oil sales at the pre-war level, the Commission might have some U.S. $6 billion a year with which to meet claims. It seems likely that the total amounts claimed may well come to some U.S. $400 billion. Even if the Commission awards only half that amount, it would still take over thirty years to honor all those awards. It seems probable, therefore, that a

compromise settlement will be negotiated at some stage, if the environmental claims are not to fall by the wayside in their entirety.

IV. State Responsibility for Environmental Damage in Internal Armed Conflicts and United Nations Operations

A. Internal Armed Conflicts

Internal armed conflicts raise rather different questions. International law regarding internal armed conflicts contains fewer rules regarding the environment.[50] Common Article 3 of the Geneva Conventions does not mention the environment or destruction of property. Additional Protocol II, 1977, contains no provisions comparable to Articles 35(3) and 55 of Additional Protocol I, although Articles 14 and 15 of Additional Protocol II deal with attacks on articles indispensable to the survival of the civilian population and works containing hazardous forces, and thus have environmental implications.[51] The Hague Regulations, 1907, and the Conventional Weapons Convention, 1980,[52] are applicable only to international armed conflicts. It is far from clear whether there is any customary law principle regarding the environment which applies to the parties in an internal armed conflict.

It is probable, therefore, that claims that a State was internationally responsible for damage to the environment occasioned in an internal armed conflict would be brought by other States which had suffered as a result of that conflict and would be based on general environmental treaties and principles of customary law, rather than the laws of armed conflict. It is also possible that a State which wantonly damaged the environment within its own jurisdiction to the detriment of its population might face action under one of the human rights treaties.[53] Environmental damage caused by an insurgent movement would engage State responsibility only if the movement went on to become the government of that State.[54]

B. United Nations Operations

When United Nations forces engage as combatants in an armed conflict, they are subject to the laws of armed conflict, as are national forces operating, as in the Gulf, under a mandate from the Security Council but under national command and control. In the latter case, no special questions of State responsibility arise. If Coalition forces in the Gulf had caused environmental damage by acts which were contrary to the laws of armed conflict, they would have engaged the responsibility of their own States. Whether the conduct of forces from one Coalition State would have engaged the responsibility of its allies in addition must be regarded as unsettled.[55] There is no history of allied powers being held jointly responsible in this way but in principle joint responsibility should not be excluded where, for

example, aircraft from one State carry out an unlawful attack at the behest of a commander from an allied State.

A more difficult situation arises where unlawful acts are committed by forces under United Nations command. The nature of many modern United Nations operations, such as those in Somalia and the former-Yugoslavia, which are neither traditional peacekeeping nor straightforward enforcement actions, further complicates the picture. Two problems may briefly be mentioned:

(1) what law applies to military operations by United Nations forces when it is denied that those forces are a party to a conflict but they are nevertheless involved in fighting? Although the International Committee of the Red Cross (ICRC) has argued that once such forces become involved in fighting, the laws of armed conflict become applicable to them, it is far from clear that State practice supports this view. It does not appear, for example, to have been the view taken by States in respect of the fighting by UNPROFOR in Bosnia. The 1994 Convention on the Protection of United Nations Personnel[56] also seems to envisage that United Nations forces and associated personnel may become involved in hostilities at a level below the threshold for application to them of the laws of armed conflict.

(2) is a State internationally responsible for the acts of its servicemen when they form part of a United Nations force? Both the United Nations and the State may be lawful claimants in respect of wrongs done to such servicemen.[57] The general view has been, however, that it is the United Nations, not the contributing State, which is the appropriate defendant in cases where U.N. forces have violated the law in the course of their official duties.[58] Had it proceeded with the action which it threatened to bring against the United Kingdom in 1993, Bosnia might have attempted to argue otherwise. One problem in this respect is that the boundary line between troops under U.N. command and troops engaged in a U.N. operation but under national or alliance command and control has become blurred in recent years. If a national contingent which is part of a United Nations force conducts a particular attack because of national, rather than U.N. orders, international responsibility for any violation of the law would appear to rest with the State rather than the United Nations.

V. Civil Liability Under National Law

Civil actions by individuals against individual polluters have in some respects become more important than State responsibility in enforcing general environmental law. The possibility of a civil action in a national court for environmental damage in time of armed conflict has not, however, received much attention. It is not difficult to see why. Unlike most polluting activities, the military operations which cause environmental or other damage in wartime are performed by agents of the State. If that State or its agents were sued in the courts of another State, they would normally be entitled to sovereign immunity.[59] Even

if the defendant were not immune, the act of State doctrine would bar consideration of the merits of the claim in some jurisdictions.

Nevertheless, the possibility of a civil action should not be altogether excluded. Many States now make an exception to sovereign immunity for torts committed outside their jurisdiction but which cause damage within the jurisdiction.[60] If, therefore, the release of oil into the sea off the coast of State A caused damage to beaches in State B, the courts of State B might well hold that the exception to immunity was applicable. The recent decision of the House of Lords in *Kuwait Air Corporation v. Iraq Airways Co.*,[61] though not concerning environmental damage, also suggests that the English courts may be readier than in the past to separate the act which was the proximate cause of damage from the context of armed conflict in which it took place. The act of State doctrine, the possible application of which in the *Kuwait Airways Case* has yet to be decided, is construed more broadly by courts in the United States, where it reflects constitutional concerns, than in many other States. It is possible, therefore, that civil actions may come to play a more important part.

VI. Conclusion

The principle that if the armed forces of a State cause damage to the environment of other States by acts which are a violation of the laws of armed conflict, then the State incurs responsibility under international law is clear. Such a State is thus exposed to claims for compensation which may involve enormous amounts of money, as well as claims for other remedies and the possibility of retaliatory action. In theory, this possibility should operate as a significant deterrent. State responsibility is listed first amongst the methods of ensuring compliance with the rules of the law of armed conflict on the environment in the 1993 Report submitted by the Secretary-General but prepared by the ICRC.[62] So far, however, there is little sign that it has had such an effect. As with the protection of the environment in peacetime, State responsibility has a role to play but that role has hitherto been peripheral. It is possible that the work of the United Nations Compensation Commission may change all that. If the Commission succeeds in forcing Iraq to pay a substantial sum for the damage which Iraq wrought upon the environment, States may take their environmental obligations in time of armed conflict more seriously. The odds are, however, heavily stacked against such a result and the longer that the process takes, the less its deterrent value is likely to be. Civil liability for environmental damage in armed conflict is still in its infancy. While we should not, therefore, ignore the role that these concepts may have to play, it would be unwise to place much reliance upon them.

On the other hand, the precautionary measures, such as the conduct of environmental impact assessments, which have become so important in protecting the environment in time of peace, are ill-suited to conditions of armed conflict.

The most that might be expected here is that the obligation under Article 36 of Additional Protocol I to review new weapons in order to determine whether their use would comply with the law of armed conflict will come to embrace the environmental dimension of that law. In practice, it is in the field of education and training and the application of political pressure upon belligerents that the best hope lies. As one of the leading textbooks states, what needs to be emphasized is the importance of making environmental consequences a serious concern in military decisions.[63] It is unlikely that this will be achieved through the application of the principles of State responsibility.

Notes

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1. International Law Commission (I.L.C.), Draft Articles on State Responsibility, Part I, Art. 1 [hereinafter Draft Articles]. For discussion, *see* I OPPENHEIM'S INTERNATIONAL LAW, (Jennings & Watts, ed. , 9th ed. 1992) 500; and BROWNLIE, SYSTEM OF THE LAW OF NATIONS: STATE RESPONSIBILITY, Vol. I (1983).

2. *Supra*, n. 1, Art. 3.

3. *See* the arbitration award in the *Trail Smelter Case*, 3 Reps. Int'l. Arb. Awards 1905 (1939-41). For discussion, *see* BIRNIE & BOYLE, INTERNATIONAL LAW AND THE ENVIRONMENT (1992) at 139, and Mazzeschi, *Forms of International Responsibility for Environmental Harm, in* INTERNATIONAL RESPONSIBILITY FOR ENVIRONMENTAL HARM (Francioni & Scovazzi, eds. 1991) at 15.

4. Draft Articles, *supra* n. 1, Art. 19.

5. BIRNIE & BOYLE, *supra* n. 3 at 158.; Kiss, *Present Limits to the Enforcement of State Responsibility for Environmental Damage, in* Francioni & Scovazzi, *supra* n.3 at 3.

6. New Zealand's claim regarding the 1995 French nuclear tests, in which New Zealand has sought to reopen the 1974 judgment of the International Court of Justice in the *Nuclear Tests Case*, I.C.J. 1974, 477, does, however, refer both to the potential damage to New Zealand's interests and those of other States. The emphasis, nevertheless, is on the former.

7. For a discussion of the work of I.L.C., *see* Tomuschat, *International Liability for Injurious Consequences Arising out of Acts not Prohibited by International Law, in* Francioni & Scovazzi, *supra* n.3 at 37.

8. *See, e.g.*, BIRNIE & BOYLE, *supra* n. 3 at 149.

9. 74 I.L.R. 256. *See* the decision of the International Court of Justice *in Case Concerning Military and Paramilitary Acts in and Against Nicaragua* (Nicaragua v. USA), 1986 I.C.J. 3. *See also*, Jennings and Watts, *supra* n. 1 at 546-7, especially nn. 5 and 7.

10. United Kingdom, *Manual of Military Law*, Part III, 173 (1958). *See also* U.S. Department of the Navy, *Annotated Supplement to the Commander's Handbook on the Law of Naval Operations*, NWP 9 (Rev. A)/ FMFM 1-10 (1989), Chapter 6, n. 19; Germany, *Humanitarian Law in Armed Conflicts Manual*, para. 12M (1992); and II OPPENHEIM'S INTERNATIONAL LAW, at 592-95 (Lauterpacht ed., 7th ed.) 1952.

11. These rules are discussed in detail in several of the other papers delivered at the Symposium. A useful summary of the rules is to be found in the material provided by the International Committee of the Red Cross (ICRC) in the *Report of the Secretary-General on the Protection of the Environment in times of Armed Conflict*, submitted to the General Assembly on 29 July 1993, U.N. Doc. A/48/269. *See also*, ENVIRONMENTAL PROTECTION AND THE LAW OF WAR (Plant ed. 1992).

12. 1108 U.N.T.S. 151 (1978); 16 I.L.M. 88 (1977).

13. 1125 U.N.T.S. 3 (1979); 16 I.L.M. 1391 (1977).

14. *See* U.S. Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP 1-14M (1995), para. 8.1.3. This paragraph was added in this edition of the *Handbook*.

15. *See, e.g.*, the I.C.R.C. paper cited in n. 11 *supra*, U.N. Doc. A/48/269, at 25.

16. *See* Hague Convention No. IV, Respecting the Laws and Customs of War on Land, 1907, Art. 23(g) of the Regulations annexed thereto. *See also* Art. 55 of those Regulations and Geneva Convention No. IV, Relative to the Protection of Civilian Persons in Time of War, 1949, Art. 53 on the destruction of property in occupied territory.

17. Geneva Gas Protocol, 1925, 26 U.S.T. 571; T.I.A.S. 8061; 94 L.N.T.S. 65; and Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons, 1972, 26 U.S.T.

583; T.I.A.S. 8062, and the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction, 1993, *reprinted in* 32 I.L.M. 804 (1993).

18. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, with annexed Protocols, 1980, *reprinted in* 19 I.L.M. 1524 (1984) Protocols II and III.

19. Protocol I Additional to the Geneva Conventions Relating to the Protection of Victims of International Armed Conflicts, with Annexes, (1977), Art. 54.

20. *Id.*, Art. 56.

21. This qualification, though obvious, is important because many States have not become party to some of the treaties listed above. The United States is not, for example, party to Additional Protocol I. Neither Additional Protocol I nor ENMOD was applicable to the Kuwait conflict of 1990-91.

22. *Supra*, n. 16, Art. 3.

23. *Supra*, n. 19, Art. 91.

24. Draft Articles, *supra* n. 1, Art. 5.

25. 4 Reps. Int'l. Arb. Awards 110, 116.

26. *III Proceedings of the Hague Peace Conferences* 140 (Carnegie Endowment, trans.).

27. 88 *Rec. des Cours* 65, 71 (1955).

28. Kalshoven, *State Responsibility for Warlike Acts of the Armed Forces*, 40 Int'l & Comp. L.Q. 827, 837 (1991).

29. Id.

30. Brief details of these three incidents are given in NWP-9, Rev. A, Annotated Edition at chap. 6, 19, *supra* n. 10.

31. Joint Statement of British and Argentine Delegations, Madrid, 19 Oct. 1989, para. 3.

32. Security Council Resolutions 660 (1990), 662 (1990) and subsequent Resolutions. These Resolutions and other pertinent documents are contained in IRAQ AND KUWAIT: THE HOSTILITIES AND THEIR AFTERMATH (Weller ed. 1993).

33. *See*, in particular, the Report of the Executive Director, United Nations Environment Programme, 10 May 1991, *Environmental Consequences of the Armed Conflict between Iraq and Kuwait*, UNEP/GC.16/4/Add.1, and the Report of the U.N. Secretary General, 19 June 1992, *International Co-operation to Mitigate the Environmental Consequences on Kuwait and other Countries in the Region resulting from the Situation between Iraq and Kuwait*, U.N. Doc. A/47/265. *See also* ARKIN, et al, ON IMPACT (1991).

34. *See* especially, the papers by Rear Admiral Schriefer, Lt. General Williams, and Mr Arkin, *supra*.

35. U.N. Doc. S/22559, 2 May 1991.

36. For discussion of the Commission and its work to date, *see* THE UNITED NATIONS COMPENSATION COMMISSION: PROCEEDINGS OF THE 13TH SOKOL COLLOQUIUM (Lillich ed. 1995); Crook, *The United Nations Compensation Commission - A New Structure to Enforce State Responsibility*, 87 A.J.I.L. 144 (1993); Bettauer, *The UN Compensation Commission - Developments since 1992*, 89 A.J.I.L. 416-23 (1995); and Fox, *Reparations and State Responsibility, in* THE GULF WAR 1990-91 IN INTERNATIONAL AND ENGLISH LAW 261 (Rowe ed. 1993).

37. Crook, *supra* n. 36 at 154.

38. Bettauer, *supra* n. 36 and Rovine & Hanessian, *Making Iraq Pay for Gulf War Losses*, 10 Int'l. Arb. Rep. 22 (June 1995), at 22. Since Iraq has so far refused to sell oil, the only funds available to the Commission have come from the partial liquidation of Iraq's overseas assets.

39. Paragraph 34; U.N. Doc. S/AC.26/1991/7/Rev. 1 (17 March 1992); Weller ed., *supra* n. 32 at 550.

40. *Id.*, para. 35.

41. Decision No. 12, U.N. Doc. S/AC.26/1992/12; Weller ed., *supra* n. 32 at 561.

42. Rovine & Hanessian, *supra* n. 38 at 23.

43. Art. 31 of the Provisional Rules for Claims Procedure, annexed to Decision No. 10, 26 June 1992; UN Doc. S/AC.26/1992/10; Weller ed., n. 32 at 553.

44. Crook, *supra* n. 36 at 147.

45. It is a well established principle of the law of armed conflict that the law of armed conflict applies equally to both parties to a conflict and that the fact that the occupation of one State by another is illegal does not make individual members of the armed forces criminally responsible for acts which are not breaches of the law of armed conflict; *United States v. List*, 15 Ann. Dig. 632 at 1637 (1948).

46. Decision No. 11, 26 June 1992, U.N. Doc. S/AC.26/1992/11; *supra* Weller ed., *op. cit.*, n. 32 at 560.

47. *See* Greenwood, *Customary International Law and the First Geneva Protocol of 1977 in the Gulf Conflict, in* THE GULF WAR 1990-91 IN INTERNATIONAL AND ENGLISH LAW 63, 86-7 (Rowe ed., 1993), and Roberts, *Failures in Protecting the Environment in the 1990-91 Gulf War, in id.*, at 111.

48. *See, e.g.*, Rovine & Hanessian, *supra* n. 38.

49. Arbitrator Parker, *The War Risks Insurance Premium Claims*, 7 Reps. Int'l. Arb. Awards (1923), at 44, *quoted in* Fox, *supra* n. 36.

50. *See* the Report of the Secretary-General, U.N. Doc. A/48/269, at 8-9.

51. Protocol II Additional to the Geneva Conventions Relating to the Protection of Victims of Non-International Armed Conflicts (1977), 16 I.L.M. 1442 (1977).

52. *Supra*, nn. 16 & 18, respectively.

53. *See*, arguments discussed *in* Desgagne, *Integrating Environmental Values into the European Convention on Human Rights*, 89 A.J.I.L. 263 (1995).

54. Draft Articles, *supra* n. 1, Art. 15.

55. *See* BROWNLIE, *supra* n. 1, at 189.

56. *See* Bloom, *Protecting Peacekeepers: The Convention on the Safety of United Nations and Associate Personnel*, 89 A.J.I.L. 621 (1995).

57. Both Sweden and the United Nations made claims against Israel concerning the killing of Count Bernadotte in 1948. *See also* the *Reparations Case*, 1949 I.C.J. 182.

58. *See* BOWETT, UNITED NATIONS FORCES 245 (1964). *See also*, the decision of the Austrian Provincial Court in *N.K. v. Austria*, 77 I.L.R. 470.

59. *See* the decision of the U.S. Supreme Court in *Argentine Republic v. Amerada Hess Corp.*, 102 L. Ed. 2d 818 (1989); 81 I.L.R. 658.

60. *See, e.g.*, United States Foreign Sovereign Immunities Act 1976, Section 1605(a)(5) and the United Kingdom State Immunity Act 1978, Section 5.

61. 3 All ER 694 (1995).

62. U.N. Doc. A/48/269, at 9.

63. BIRNIE & BOYLE, *supra* n. 3, at 130.

Chapter XXIV

State Responsibility and Civil Reparation for Environmental Damage

Professor Leslie C. Green*

Before attempting to discuss issues relating to the protection of, or damage to the environment, it is necessary to have some idea of what is meant by that term. In its simplest, but widest form, the environment includes everything that relates to

> the conditions or influences under which any person or thing lives or is developed; that is to say, the sum total of influences which modify and determine the development of life.[1]

This means that protection of the environment extends to every natural form, be it the atmosphere or the agricultural, water or animal ambience on which man depends for his healthy existence, free of any form of pollution that will have a deleterious effect on his enjoyment of life. Perhaps the best expression of this concept in a legal document is found in the Peruvian Constitution of 1978,[2] recognizing the right of everyone

> to live in a healthy environment, ecologically balanced and adequate for the development of life and the preservation of the countryside and nature.

While there is a tendency in modern writings on international law to assume that the protection of the ecology and the environment have only recently become of significance, and this is particularly true in relation to the law of armed conflict, it is interesting to note that those responsible for compiling the Old Testament were conscious of these issues and sought to deal with them when instructing the Israelites as to the method of conducting their warfare. Thus, when the Israelites were informed by God that He would drive the Canaanites from the land so they would inherit it, He said:

> I will not drive them out before thee in one year, lest the land become desolate, and the beasts of the field multiply against thee.[3]

This concern for the preservation of the land is repeated in Deuteronomy[4] in relation to the utter destruction of heathen tribes among the inhabitants of Canaan:

> When thou shalt besiege a city a long time in making war against it to take it, thou shalt not destroy the trees thereof by wielding an axe against them; for thou mayest eat of them, but thou shalt not cut them down; for is the field man, that it should be besieged of thee? Only the trees that thou knowest are not trees for food, them thou mayest destroy and cut down, that thou mayest build bulwarks against the city that makest war with thee, until it fall.

Military necessity, therefore, would justify the destruction of vegetation not essential to man's survival. In fact:

> Josephus elaborates that this included not setting fire to their land or destroying beasts of labor. Maimonides flatly states that the destruction of fruit trees for the mere purpose of afflicting the civilian population is prohibited and, finally, we have the broad interpretation of Rabbi Ishmael that 'not only are fruit trees but, by argument, from minor to major, stores of fruit itself may not be destroyed'.[5]

Allowing for developments in terminology and ideology, the principles here laid down foretell almost precisely the terms of the Principles of the Stockholm Declaration:[6]

> Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. . . . The natural resources of the earth including the air, water, land, flora and fauna and especially representative samples of natural ecosystems must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate. The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

It goes on:[7]

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction. States shall co-operate to *develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.*

Perhaps even closer to the Biblical approach is the 1982 World Charter for Nature proclaimed by the General Assembly of the United Nations:[8]

> Mankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients . . . living in harmony with nature gives man the best opportunities for the development of his creativity, and for rest and recreation. . . . Every form of life is unique, warranting respect regardless of its worth to man, and, to accord other organisms such

> recognition, man must be guided by a moral code of conduct. Man can alter nature and exhaust natural resources by his action or its consequences and, therefore, must fully recognize the urgency of maintaining the stability and quality of nature and of conserving natural resources.

While the Stockholm Declaration lacks legal force, the Third Restatement of the Foreign Relations Law of the United States[9] postulates:

> S.601 (1) A State is obligated to take such measures as may be necessary, to the extent practicable under the circumstances, to ensure that activities within its jurisdiction or control (a) conform to generally accepted international rules and standards for the prevention, reduction, and control of injury to the environment of another State or of areas beyond the limits of national jurisdiction; and (b) are conducted so as not to cause significant injury to the environment of another State or of areas beyond the limits of national jurisdiction. (2) *A State is responsible to all other States* (a) for any violation of its obligations under Subsection (1)(a), and (b) for any significant injury, resulting from such violation, *to the environment of areas beyond the limits of national jurisdiction.* (3) A State is responsible for any significant injury, resulting from a violation of its obligations under Subsection (1), to the environment of another State or to its property, or to persons or property within that State's territory or under its jurisdiction or control.
>
> S.602. (1) A State responsible to another State for violation of S.601 is subject to general interstate remedies to prevent, reduce, or terminate the activity threatening or causing the violation, and to pay reparation for injury caused. . . .

Accepting these sections as fully declaratory of established law—and this is perhaps arguable—it is to be noted that there is no indication of any personal responsibility nor of any suggestion that an international crime has been committed, nor is any guidance given as to how the International Court, for example, would assess the compensation due to a claimant State in respect of damage caused to the environment "beyond the limits of national jurisdiction." There is no way that it can be claimed that this 'legal obligation' stems, for example, from the 1967 Treaty on the Use of Outer Space,[10] Article 9 of which expressly refers to damage to the environment, enjoining States when indulging in any form of space activity to avoid "adverse changes in the environment of the Earth," but is silent as to how liability for such damage may arise or be dealt with. Perhaps this is not surprising in view of the fact that the 'environment of the earth' outside any State's jurisdiction is *res communis*. The whole issue of what might be described as damage to the 'global commons' has been well expressed in a recent work:[11]

> . . . [T]he problem of harm to the global commons, such as the space environment itself, presents particular legal problems. First, harm to the environment *per se* is a developing legal concept and meets resistance in application. . . . The difficulties are exacerbated where it cannot be established with certainty that harm to the global commons would result in identifiable harm to human beings. Second, the threshold of harm impacting the global commons cannot easily be measured with sufficient

precision to enable a liability regime to be established. Finally, the effects are dispersed and there are multiple contributors, making attribution of harm, extremely difficult.

. . . [W]hen the damage caused is to the environment of a place outside territorial jurisdiction such as the high seas and deep seabed, international air space, outer space and Antarctica, no State may be able to present a claim on behalf of all humanity, which is the true victim of environmental damage. UNCLOS[12] provides a solution in this situation for the deep sea bed. Article 145 confers on the Authority the duty to assure protection of the ocean environment in regard to activities taking place in the Zone. This would seem to encompass the ability to present claims of State responsibility for violations of the treaty, the more so as Article 139 declares that a State party or an international organization is responsible for damages resulting from a breach of the obligations imposed on it by the Convention. It may also be claimed that norms protecting the global commons constitute obligations *erga omnes* which may be enforced by any State.

Outside of conferred representation of the general interests of humanity, responsibility for damage caused to the *res communis* or common heritage of humanity can only be engaged in an indirect manner, in the case where conventional rules protect a given sector. Under general rules of international law, each State that is a contracting party to a treaty has the right to supervise application of the treaty by other contracting parties. Thus, one contracting party to the treaty can make a claim in this respect, whether or not the claimant State directly suffered damage. One example would be the dumping of wastes in the ocean in violation of international obligations. *However, it is not clear that a State that intervenes to uphold the treaty can demand damages when it has not suffered any direct injury but instead represents the common interest. Its intervention may be limited to a protest or declaration of noncompliance.*

An excellent example of the concept of 'global commons' may be seen in the 1991 Protocol on Environmental Protection to the Antarctic Treaty.[13] Antarctica is designated 'a natural reserve, devoted to peace and science.' Article 3 is devoted to 'environmental principles' and provides that:

2(b) activities in the Antarctic Treaty area shall be planned and conducted so as to avoid (i) adverse effects on climate or weather patterns; (ii) significant adverse effects on air or water quality; (iii) significant changes in the atmospheric, terrestrial (including aquatic), glacial or marine environments; (iv) detrimental changes in the distribution, abundance or productivity of species or populations of species of fauna and flora; (v) further jeopardy to endangered or threatened species or populations of such species; or (vi) degradation of, or substantial risk to, areas of biological, scientific, historic, aesthetic or wilderness significance . . .

Article 16 imposes upon parties an obligation to elaborate rules and procedure concerning liability for damage, while Articles 18 to 20 provide for settlement of disputes by consultation, the World Court or the Arbitral Tribunal envisaged in a schedule to the Protocol.

Whatever may have been the position at the time of the Israelite wars, it was not until the adoption of Additional Protocol I in 1977 that any attempt was made to provide a legal obligation to recognize during conflict the needs of the environment in the wide sense that has been elaborated here. In the Protocol we find a clear ban on using starvation as a weapon directed against the civilian population, as well as provisions forbidding destruction or removal of, or attacks against,

> objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas for the production of foodstuffs, crops, livestock . . . [unless] used by an adverse Party as sustenance solely for the members of its armed forces; or . . . in direct support of military action . . .[14]

So as not to carry the parallel too far, it should here be mentioned that the injunctions of the Old Testament were only subject to divine punishment, whereas by reason of the Additional Protocol I such activities are likely to be treated as war crimes.

While it was not until 1977 that means and methods of warfare directed against the ecology and environment became matters of treaty concern, it should not be forgotten that long before the Twentieth Century, national military codes were already prohibiting activities directed against materials essential to the sustenance of the ecosystem[15] and included provisions for the punishment of those ignoring such injunctions. Thus, as early as 1564, Maximilian II, Holy Roman Emperor, reflecting the needs of an agricultural community, decreed that:

> none shall thieve any plough or mill or baking oven . . . whether it be from friend or foe, . . . nor shall he willingly cause . . . grain or flour to leak away or to spoil or to come to any harm, on pain of corporal punishment.[16]

Similarly, in 1690 it was laid down that:

> he who would dare in foreign countries to set ablaze or demolish . . . baking ovens or to despoil . . . ploughs or farm implements in a township or hamlet shall be punished as a bloody villain.[17]

Likewise, during the Seven Years War, Frederick the Great informed his forces that:

> on pain of death or severe punishment, particular care shall be taken to avoid any damage to wooded areas, homes, fields and gardens, fruit, fruit trees, barns and all property belonging to the estate owners and farmers.[18]

These military codes were directed at the members of the particular monarch's forces and made no reference to any liability on the part of a commander who may have issued an order requiring such action.

Apart from codes of this type, no instrument relating to armed conflict purported to deal with the protection of the ecology or environment or materials relating thereto. Moreover, there was no provision in the conventional law of peace nor any clearly established customary rule that could be considered as relevant, although it was generally recognized that, in accordance with the basic principle of Roman law to which most European systems owed their origin, *sic utere tuo ut alienum non laedas*[19]. This principle, though not quoted as such, was applied in the international arbitration between the United States and Canada in the *Trail Smelter* arbitration,[20] the only international decision yet rendered which may be considered as having dealt with environmental issues. While damage to the environment as such was not referred to, the Tribunal held Canada liable for the resultant material damage produced in the State of Washington by pollution engendered by the discharge of sulphur dioxide into the atmosphere resulting from the activities of the smelter in Canada:

> . . . under the principles of international law, . . . no State has the right to use or permit the use of its territory in such a manner as to cause injury [in this case] by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.

Although there is a tendency to regard *Trail Smelter* as being the trail-blazer in international environmental law issues, its precedential value is extremely limited, partly because of the acknowledgement by Canada of liability for any proven damage, and partly in view of the provision in the *compromis* that

> . . . the Tribunal shall apply the law and practice followed in dealing with cognate questions in the United States as well as international law and practice, and shall give consideration to the desire of the high contracting parties to reach a solution just to all parties concerned, thus opening the door to equitable considerations and introducing, in addition to legal considerations, concepts that were both political and economic. In fact, it has been said[21] that in the light of the unique political and historical circumstances surrounding the dispute, and the manoeuvring that both the Canadian and U.S. governments went through during the fourteen years leading up to the Tribunal's [final] decision in 1942, one might conclude . . . that the resolution of these types of disputes as simply a matter of power politics between governments more interested in meeting short-term political goals than in discovering long-term solutions to environmental problems. Either way, *Trail Smelter* dwindles into insignificance, an object of little more than historical interest." However, "[t]here is still a significant legal dimension. . . . *Trail Smelter* . . . remain[s] a landmark, although its usefulness is not so much as a 'case,' but as a 'case study,' providing a framework for the analysis of interstate disputes with environmental dimensions.[22]

Since the Tribunal's award there has been no international decision relating to environmental issues, although had the World Court had an opportunity to deal

with some of the substantive problems raised by Australia and New Zealand in connection with French nuclear tests in the Pacific,[23] as was to some extent sought by both Australia and New Zealand in their applications to the Court, there might well have been authoritative judicial comment on environmental protection, for it was alleged that the French tests violated the rights of all members of the international community including the complainant State, so that no future nuclear tests should be undertaken that would give rise to radioactive fall-out, and that the tests would also violate the rights of all members of the international community to the preservation from unjustified artificial radioactive contamination of the terrestrial, maritime and aerial environment and, in particular, of the environment of the region in which the tests were being conducted.[24] Instead, the primary issues became irrelevant as soon as France announced that it had abandoned its proposal to hold any further tests. Prior to this, the dispute was affected by jurisdictional considerations and the Court appears to have been happy in not having been called upon to decide any environmental issue or any question relating to the legality of the tests as such,[25] adopting the comment it had made in 1973 concerning the jurisdictional issues arising from the *Fisheries Jurisdiction* cases between the United Kingdom and Germany against Iceland:

> The issue being thus limited, the Court will avoid not only all expressions of opinion on matters of substance, but also any pronouncement which might prejudge or appear to prejudge any eventual decision on the merits.[26]

Any further likelihood of the Court considering possible environmental issues became impossible once the Court decided that the French decision not to hold tests above ground meant that the protests by Australia and New Zealand had no further object.

It is possible that the World Court will in fact be able to rule on the environmental issues arising from the use of nuclear weaponry when it delivers the advisory opinion requested by the World Health Organization on the *Legality of the Use by a State of Nuclear Weapons in Armed Conflict*,[27] or perhaps in the attempt by New Zealand in 1995 to secure a further decision from the Court enjoining France from holding further nuclear tests in the Pacific because of the threat to the environment. This is perhaps more important than might otherwise be the case in view of the fact that Additional Protocol I, while banning environmental damage in conflict, does not *expressis verbis* deal in any way with nuclear warfare, even though the General Assembly adopted in 1961 a Declaration on the Prohibition of the Use of Nuclear and Thermo-Nuclear Weapons stating dogmatically that:

> the use of nuclear and thermo-nuclear weapons is contrary to the spirit, letter and aims of the United Nations and, as such, a direct violation of the Charter of the United

> Nations . . . [and] is a war directed not against an enemy or enemies alone but also against mankind in general, since the peoples of the world not involved in such a war will be subjected to all the evils generated by the use of such weapons. Any State using such nuclear and thermo-nuclear weapons is to be considered as violating the Charter of the United Nations, as acting contrary to the laws of humanity and as committing a crime against mankind and civilization. . . .[28]

The only nuclear power to vote in favor of this Declaration was the Soviet Union, with the other nuclear powers opposing. Similarly, the 1972 Resolution on Non-Use of Force in International Relations and Permanent Prohibition of the Use of Nuclear Weapons[29] fared no better. By the time of the adoption of Additional Protocol I, it had become clear that the nuclear powers, including the Soviet Union, were not prepared to consider any attempt to regulate or condemn the use of the nuclear weapon, and even the International Committee of the Red Cross (ICRC) recognized that since the issue was already under discussion as a matter of disarmament, it had excluded any reference to this weapon and its effects, environmental and other, from its drafts of the Protocol.[30] In view of this, it is apposite to mention the Japanese Note of 20 February 1958 presented to the United States Government in regard to the latter's nuclear tests, although even here there is no suggestion that the testing State would incur any liability for damage to the environment:

> In view of this menace posed by nuclear tests to mankind . . . the Japanese Government would like to make clear its view that in the event the United States Government conducts nuclear tests in defiance of the request of the Japanese Government, the United States Government has the responsibility of compensating for economic losses that may be caused by the establishment of a danger zone and for all losses and damages that may be inflicted upon Japan and the Japanese people as a result of the nuclear tests. The Japanese Government wishes to reserve the right to demand complete compensation for such losses and damages.[31]

The silence of the Additional Protocol I does not mean that international law, both of peace and of armed conflict, has completely ignored the subject of the environment and its protection. On the basis of the *sic utere* rule, as expounded in *Trail Smelter*, it is clear that if the environment of one State is adversely affected by activities in another, the former will be liable for any damage caused thereby and will be required to pay compensation and to take steps to ensure that the cause of such damage is dealt with so as to remove the possibility of further damage in the future. When assessing losses resulting from environmental damage, care must be taken not to assume that all apparent damage is in fact so caused. Thus, the arbitrators were careful to award damages only in respect of losses to, for example, trees that could clearly be shown to have resulted from sulphur fumigation, and the approach of the Tribunal to damage alleged to have been caused to livestock is of major significance since so many other causes of injury, natural or accidental,

might have been responsible, and what is true of livestock is equally true of human beings. This problem of remoteness is equally significant in both peacetime and armed conflict.

In so far as the law of armed conflict is concerned, it must be recognized that, at least regardless of intentional or incidental damage to the fauna and flora, already recognized in *Trail Smelter*, damage to the environment became inevitable with the introduction of heavy and especially atomic and nuclear weaponry. It cannot be denied that the discharge of high explosives in their various forms and the abandonment of heavy matériel necessarily have a deleterious effect upon the environment. At no time, however, has it been suggested that those responsible for the discharge or abandonment of such weaponry incurred any sort of international liability.

Even when the Tokyo District Court was faced in 1963 with assessing the legality of the dropping of atomic bombs on Hiroshima and Nagasaki[32] it did not concern itself with any adverse effects on the environment. While the Court considered that the bombs were comparable to the use of poison and poisonous gases and their

> dropping . . . may be regarded as contrary to the fundamental principle of the law of war which prohibits the causing of unnecessary suffering,[33]

it went on to make a point which is extremely relevant in any estimate of responsibility for the use of any weapon which has a diffused effect and is, in normal circumstances, unlikely to have been launched on the personal responsibility of any individual member of the forces. In this case, however, it is well-known that Truman, then President of the United States, personally made the decision to use this weapon.[34] However, according to the traditional view, which is to be found in Article 3 of 1907 Hague Convention No. IV:[35]

> A belligerent party which violates the Regulations [annexed to the Convention] shall, if the case demands, be liable to pay compensation. It shall be responsible for all acts committed by persons forming part of its armed forces.

Applying this principle, which may now have been changed by virtue of later developments in the law, the Tokyo court held:

> Since it is not disputed that the act of atomic bombing on Hiroshima and Nagasaki was a regular act of hostilities performed by an aircraft of the United States Army Air Force, and that Japan suffered damage from this bombing, it goes without saying that Japan has a claim for damages against the United States in international law. In such a case, however, responsibility cannot be imputed to the person who gave the order for the act, as an individual. Thus, in international law damages cannot be claimed against President Truman of the United States of America who ordered the atomic bombing, as it is a principle of international law that the State must be held

> directly responsible for an act of a person done in his capacity as a State organ, and that person is not held responsible as an individual.[36]

If such bombing had been found by the Court to have constituted a war crime, it would appear that the judgment completely disregarded the law of criminal liability in armed conflict as it existed at that time, and which was already available in the *Yamashita*[37] and *Meyer*[38] decisions, both of which sustained not only the personal liability of the actor, but also that of the commander who gave the order or failed to prevent the commission of the illegal act.

While there have been various efforts in the law of peace to deal with such areas as Antarctica, specific portions of the air or the oceans, such as pollution or overfishing, it is only in the area of armed conflict law that any real attempt has been made to protect the environment as such, as distinct from authorising limited action against an offender or providing a means of securing compensation for damage in a neighboring State resulting from activity affecting the environment. Prior to the adoption of such law, however, there was a series of General Assembly Resolutions and Conventions concerning the use of outer space, but these related to damage to objects rather than to outer space or the environment itself. Thus, the Convention on International Liability for Damage caused by Space Objects expressly states that

> the term 'damage' means loss of life, personal injury or other impairment of health; or loss or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations . . . a launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight.[39]

Clearly, the Convention imposes no liability for any damage done to the environment by the space object, even as a result of its disintegration in space, and is fully in line with established practice imposing liability only in respect of direct damage to an individual or an object, as may be seen in the settlement reached between Canada and the Soviet Union resulting from the breakup of Soviet satellite *Cosmos 954* over northern Canada in 1978.[40] Moreover, the liability provisions of this Convention suggest, again in accordance with traditional legal principles—*non injuria sine damnum*—that mere breach of treaty without proof of actual damage suffered to a State's interests,[41] even though there might be extraterrestrial damage, is not a ground for action.

It is interesting in this connection to note that the World Court, when outlining in the *Barcelona Traction Case* obligations operative *erga omnes*, did not make any reference to the environment, nor did it indicate how such obligations are to be enforced:

> . . . an essential distinction should be drawn between the obligation of a State towards the international community as a whole, and those arising vis-à-vis another

> State.... By their very nature the former are the concern of all States. In view of the importance of the rights involved, all States can be held to have a legal interest in their protection; they are obligations *erga omnes*. Such obligations derive, for example, in contemporary international law, from the outlawing of acts of aggression, and of genocide, as also from the principles and rules concerning the basic rights of the human person, including protection from slavery and racial discrimination.[42]

It should further be noted that while strict liability is imposed under the Convention, there remains to the offending State the mitigating factor that if the experiment or act causing the environmental damage produced benefits which outweighed the damage caused, as might be the case when one State indulges in cloud seeding to produce rain over its territory depriving a neighbor from similar benefits, such risk-creating activity would not be illegal, but even so the State responsible for the damage would not be excused from the payment of compensation to those suffering the damage.[43] Again, in seeking to impose liability, the issue of directness and causality is of significance, particularly as in the case of Chernobyl, for example, some of the damage alleged might have ensued some hundreds of miles from the origin of the damage to the environment, or may, in fact, not be experienced for many years after the act. This is particularly true when it is claimed that persons have suffered physical deterioration or injury as a result of pollution having been released into the atmosphere—an allegation that may be made long after an armed conflict has ended, with the claim that military personnel have suffered injury because of the technology employed during that conflict, as has been the case with many of the military personnel who served in the Gulf war against Iraq and are now claiming to be the victims of post-conflict syndrome. Equally problematic may be the actual source of the pollution and of the ensuing damage. More than one source may be involved and more than one State may be the originator. Thus, the 1979 Geneva Convention on Long-Range Transboundary Air Pollution provides:

> ... long-term transboundary air pollution means air pollution whose physical origin is situated wholly or in part within the area under the jurisdiction of one State and which has adverse effects in the area under the jurisdiction of another State at such a distance that it is not generally possible to distinguish the contribution of individual emission sources or groups of sources.[44]

Just as modern industrial activities and normal living conditions are pollution-productive, so modern military activities, whether in actual conflict or during training, are likely to produce conditions which cause immediate or even long-term adverse effects upon the environment. In so far as the former are concerned, it is usually within the power of the State to issue regulations directed to the diminution or prevention of such pollution. Where military activities are concerned, such regulation may not be so straightforward or feasible, especially as, in many cases, the elements producing pollution and other environmental

damage are almost inherent in themselves, such as arises with the discharge of explosive material, the emission of corrosive matter, even on an experimental basis, the abandonment of matérial, or the loss of a nuclear-powered vessel.

It is in connection with the law of armed conflict that we first find black-letter law indicating that obligations with regard to the environment are enforceable in the sense that breach thereof involves liability. Moreover, unlike the provisions in the Hague Regulations of 1907,[45] which provided for monetary compensation by the State for any breaches of the law of war, some of the new law introduces both direct and criminal liability. The first such instrument is the 1977 ENMOD Convention. In its Preamble and first two Articles, the Convention states that the parties:[46]

> . . . Realizing that the use of environmental modification techniques for peaceful purposes could improve the interrelationship of man and nature and contribute to the preservation and improvement of the environment for the benefit of present and future generations,
>
> Recognizing, however, that military or any other hostile use of such techniques could have effects extremely harmful to human welfare,
>
> Desiring to prohibit effectively military or any other hostile use of environmental modification techniques in order to eliminate the dangers to mankind from such use, and affirming their willingness to work towards the achievement of this objective . . . .
>
> [Art. 1] . . . [undertake] not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party. . . .
>
> [Art. II] . . . [T]he term 'environmental modification techniques' refers to any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition or structure of the earth, including its biota,[47] lithosphere,[48] hydrosphere[49] and atmosphere,[50] or of outer space.

The ENMOD Convention preserves the right to use environmental modification techniques for peaceful purposes and contains no provision with regard to enforcement other than to impose an obligation upon parties to take the necessary measures to prevent breach of the Convention anywhere under their jurisdiction or control. Moreover, as has been indicated, the Convention does not protect the environment outside the jurisdiction of any State and is limited to damage caused to any State Party. This means that the Convention makes no contribution to the problems already mentioned with regard to action on behalf of the 'human commons'.

More important from the point of view of developing enforceable law is Additional Protocol I to the 1949 Geneva Conventions.[51] Article 35 (3), includes the prohibition:

> ... to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

and Article 55, concerned solely with 'Protection of the natural environment' provides:

> 1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.
>
> 2. Attacks against the natural environment by way of reprisals are prohibited.

It should be noted that whereas the ENMOD Convention indicates that the extent of the prohibited damage is expressed in the alternative, Additional Protocol I is expressed cumulatively. It may be suggested that this is really not surprising in view of the fact that the ENMOD Convention is in practice little more than hortatory, while Additional Protocol I is compulsive and, since there is specific prohibition of means and methods having such effect, breaches of its prohibitions may amount to war crimes, even though breach of neither Article 35 or 55 is included in the list of grave breaches enunciated in Article 85 of the Protocol. However, Article 85 does not mention ordinary breaches of the customary law of war and provides that

> without prejudice to the application of the Conventions and of this Protocol, grave breaches of these instruments shall be regarded as war crimes,

indicating that the reference to grave breaches in no way interferes with or abrogates the traditional concept of offenses against the laws and customs of war, and the two Articles of the Protocol clearly constitute protection of the environment as part of that law.

Unlike traditional war crimes, offenses against Article 35 or 55 would not be committed by the ordinary man in the field. As with any decision to have recourse to nuclear weapons, the prohibitions seem

> primarily directed to high level policy decision makers and would affect such unconventional means of warfare as the massive use of herbicides or chemical agents which could produce widespread, long-term and severe damage to the natural environment.[52]

If the Japanese decision in the *Shimoda Case*[53] correctly states the law, it would mean that any politician or military superior deciding to resort to means or methods causing 'widespread, long-term and severe' damage to the environment would be exempt from liability, although it would leave open the possibility of proceeding for damages against the State on behalf of which such individual was acting. However, the situation has now been altered to some extent with the adoption of Additional Protocol I, which has now clearly established that a commander may be criminally liable for his failure to prevent and suppress breaches of the law,[54] even though there is no clear provision indicating that a commander who issues an illegal order shall be equally criminally liable with the subordinate carrying out the order. It follows, however, that if he is criminally liable for failing to prevent or suppress the commission of such a breach, he must be equally liable if he orders an act which would involve the commission of a breach, and it will not be open to such commander, as it may be to the subordinate, to plead superior orders by way of mitigation.

Article 86 of Additional Protocol I also imposes a duty upon:

> High Contracting Parties and the Parties to the conflict [to] repress grave breaches, and take measures necessary to suppress all other breaches, of the Conventions or of the Protocol which result from failure to act when under a duty to do so.

While offenses against the environment do not constitute grave breaches, they do, as has been indicated, amount to war crimes. However, there is as yet no procedure whereby a State as such may be prosecuted for any criminal act, even though it might satisfy public opinion and moral sensibilities to 'indict' a State in such circumstances. True, it is possible, as happened at Nuremberg and Tokyo, to proceed against rulers and responsible ministers, but, as to the State itself, the situation remains as it always has been with regard to claims that a State is responsible for any breach of an international obligation. That is to say, the sole effective remedy against the State in its corporate capacity is by seeking compensation.

To secure such compensation may well be impossible. In present-day international law, proceedings against a State are only possible with the consent of that State. True, the law-breaking State may have made a declaration under Article 36—the 'Optional Clause'—of the Statute of the International Court of Justice,[55] enabling a State to lodge a claim alleging it has suffered damage because of the former's acts against the environment. However, it cannot be ignored that the processes of judicial settlement are intended for peacetime issues, and it would be open to the defendant State to plead, on the basis of the *rebus sic stantibus* doctrine, that its acceptance of jurisdiction does not extend to issues arising out of armed conflict. While Article 62 of the Vienna Convention on the Law of Treaties,[56] seeks to limit the operation of this doctrine, it does not appear to inhibit

a plea of the kind here indicated. On the other hand, the Court might find it possible to reject such a plea on the basis of paragraph 2 of that Article:

> A fundamental change of circumstances may not be invoked as a ground for terminating or withdrawing from a treaty [-and the mutual declarations under Article 36 of the Statute constitute a treaty]:
>
> . . . (b) if the fundamental change is the result of a breach by the party invoking it either of an obligation under the treaty or of any other international obligation owed to any other party to the treaty,

and resort to armed conflict, unless by way of self-defense or authorized by the Security Council, constitutes a breach of the Charter of the United Nations, while the damage done to the environment would constitute a breach of Additional Protocol I or—if as the International Law Commission appears to believe—of *jus cogens*.

The comments made with regard to the application of Additional Protocol I provisions concerning the environment apply equally to Protocol III of the 1980 Conventional Weapons Convention pertaining to incendiary weapons.[57] Incendiaries inevitably cause fire and release noxious materials likely to damage the environment, and certainly destroy fauna and flora with which they come into contact and which do not constitute military objectives, a fact which is embodied in Article 2, paragraph 4 of Protocol III:

> It is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

While a belligerent might contend that the incendiaries were not directed against such flora, the plea could be rejected on the basis of reasonable foreseeability. Once again, the use of such weaponry is almost certainly going to be resorted to only as the result of a policy decision at the highest level. This raises the same problem of enforceability as has already been noted. While personal liability might, if identification is feasible, lie against the particular military or political individual issuing the order to resort to such weapons, the State making use of them could only be liable in civil damages as the result of the terms of a peace treaty or a resolution of the Security Council or of diplomatic negotiations or a judicial decision.

This procedure would, in the absence of some binding Security Council decision introducing some other method of reparation, have been the only way in which any compensation could have been recovered after the Gulf (Iraq-Coalition) war from Iraq as a result of the destruction of oil wells and other activities causing damage to the environment as such, or to such States as Kuwait or the United Arab

Emirates. There are sufficient arguably legitimate reasons for the Iraqi authorities to have resorted to these methods[58] to ensure that no claim could be lodged on the basis that these activities might have amounted to environmental war crimes, if such there be.

The International Law Commission (I.L.C.) of the United Nations has been concerned with the problem of State responsibility and has considered the extent to which such liability arises if there is damage to the environment. In 1977, it adopted Draft Articles on State Responsibility.[59] Having declared that "every wrongful act of a State entails the international responsibility of the State", for which international responsibility is incurred, it defines an

> internationally wrongful act of a State [as] conduct consisting of an action or omission . . . attributable to the State under international law, and . . . constitut[ing] a breach of an international obligation of the State.

It goes on to say, adopting a view akin to that of the Japanese court in the *Shimoda Case*,[60]

> conduct of any State organ having that status under the internal law of that State shall be considered as an act of the State concerned under international law, provided that organ was acting in that capacity in the case in question.

However, it goes further in introducing, perhaps for the first time, a provision creating the criminal liability of the State. Article 19 stipulates:

> (2) An internationally wrongful act which results from the breach by a State of an international obligation so essential for the protection of fundamental interests of the international community that its breach is recognized as a crime by that community as a whole, constitutes an international crime.
>
> (3) Subject to paragraph (2), and on the basis of the rules of international law in force, an international crime may result, *inter alia*, from . . .
>
> . . . (d) a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas.
>
> (4) Any internationally wrongful act which is not an international crime in accordance with paragraph (2) constitutes an international delict

and is of course to be dealt with as is any other international delict whether resulting from a breach of customary or treaty law. This means that a State injured as a result of such "massive pollution" would have to proceed by way of diplomatic negotiation or judicial process. While the I.L.C. Draft speaks of the "safeguarding and preservation of the human environment," it contains no suggestion that a right to bring anything in the nature of an *actio communalis* has been created, so

that the elevation of such injury to the level of a breach of international law does not alter the traditional legal processes in any way. Moreover, despite the views expressed in the Draft, there is some doubt whether even the "massive pollution" here envisaged does in fact amount to "a serious breach of an international obligation of essential importance" under international law as it now exists.

It hardly needs pointing out that this affirmation of State responsibility does not in any way affect the potential personal liability of the State organ concerned if the act involving State responsibility amounts to an infringement of international criminal law, and this is true whether it occurs in time of peace or during armed conflict. This means that while the State, as such, might be liable in damages, the organ responsible for authorizing the act resulting in damage to the environment of the type described would be the entity against which criminal proceedings might be brought. The fact that the Draft only refers to pollution of the atmosphere or of the seas does not mean that other types of environmental damage, such as destruction of fauna or flora, would not equally result in criminal liability as is the case under Protocol III and was alleged to have occurred during and after the Gulf war.

A further development with regard to individual responsibility for damage to the environment is to be found in the I.L.C.'s Draft Articles on the Draft Code of Crimes against the Peace and Security of Mankind.[61] Article 1 states dogmatically that "the crimes [under international law] defined in this Code constitute crimes against the peace and security of mankind", and by Article 26

> an individual who wilfully causes or orders the causing of widespread, long-term and severe damage to the natural environment [undefined] shall, on conviction thereof, be sentenced [to] . . .

This Draft Code is directed against the individual and makes no reference to any liability falling upon the State, an organ of which has ordered this criminal act. Since the offense is against the "peace and security of mankind" it is unlikely to have been committed on the personal initiative of a single private individual, but will be the result of State policy. The Code does not purport to overturn or displace anything in the Draft on State Responsibility, so that the State, the government or leader of which is responsible for ordering such damage, may still find itself held liable for the payment of damages to a State the interests of which have been injured by the offense against the environment.

Although the International Law Commission might consider acts harmful to the environment as constituting international crimes, even if committed in peacetime, this does not seem to be the view of States, nor do the declarations the latter make regarding environmental protection suggest that they regard this as amounting to *jus cogens*. This is especially significant since the Commission in its draft on State responsibility indicated that "massive pollution of the seas" would

constitute an international crime. In 1991, the United Nations adopted the Convention on Environmental Impact Assessment in a Transboundary Context.[62] "Environmental impact assessment" was defined as "a national procedure for evaluating the likely impact of a proposed activity on the environment," and "transboundary impact" is

> any impact, not exclusively of a global nature, within an area under the jurisdiction of a Party caused by a proposed activity the physical origin of which is situated wholly or in part within the jurisdiction of another Party.[63]

While the parties are obligated to take appropriate and effective measures "to prevent, reduce and control significant adverse transboundary environmental impact" from any activities they propose to undertake taking due account of the assessment in their final decision as to the activity, the Convention does not make any new contribution to the method of ensuring compliance with its provisions, nor does it advance in any way the means of providing remedies. It simply states in Article 15 that the solution of disputes shall be sought by negotiation or such other process that is acceptable to the parties, who may declare in advance their willingness to use the World Court or the arbitration procedure set out in the Convention. Once again, the sole method of assessing liability lies in direct or third party processes with the possibility of an injunction with or without accompanying compensation. Similarly, the International Convention on Oil Pollution Preparedness drawn up by the International Maritime Organization,[64] specifically concerned with pollution of the marine environment, goes no further than providing for international co-operation. Again, should any State be responsible for disregarding its obligations under the Convention, only the traditional means of securing reparation for breach of treaty ensues. Perhaps more significant is the fact that both these Conventions permit parties to withdraw or denounce—hardly indicative of the recognition of anything in the nature of *jus cogens*.

Finally, reference might be made to the Rio Conference of 1992 devoted to the environment and development.[65] The Declaration on Environment and Development[66] is clearly based on a variety of political issues considered relevant to development including poverty, the rights of developing States, as well as the participation of women, while

> the creativity, ideals and courage of the youth of the world should be mobilized to forge a global partnership in order to achieve a sustainable development and ensure a better future for all.

The Declaration does, however, postulate a series of Principles, the most important of which are

> 1. Human beings are at the centre of concern for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

2. States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

3. The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

4. In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

...

7. States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledged the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command.

...

10. Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes.... Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

11. States shall enact effective environmental legislation....

12.... Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

From the point of view of international law concerning the environment, perhaps the most important Principle is 13:

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. *States shall also cooperate in an expeditious and more determined manner to develop further international law regarding*

liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.[67]

The Declaration is not a binding legal document and is merely hortatory in nature. While it would appear to support the view that international environmental law is not yet *jus cogens*, the Rio Conference did draw up certain conventions towards giving effect to the statement of principles and the development of international environmental law. In the Convention on Biological Diversity,[68] "biological diversity' is defined in Article 2 as

> the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

The parties express their concern that "biological diversity is being significantly reduced by certain human activities," while declaring in the Preamble that they are

> conscious of the intrinsic value of biological diversity and of the ecological, genetic, social, economic, scientific, educational, cultural, recreational and aesthetic values of biological diversity and its components. . . . [and] also of the importance of biological diversity for evolution and for maintaining life sustaining systems of the biosphere, . . . [affirm] that the conservation of biological diversity is a common concern of mankind. . . . Noting that, ultimately, the conservation and sustainable use of biological diversity will strengthen friendly relations among States and contribute to peace for humankind, [and] desiring to *enhance and complement existing international arrangements* for the conservation of biological diversity and sustainable use of its components, and determined to conserve and sustainably use biological diversity for the benefit of present and future generations, have agreed as follows . . .[69]

Despite its highflown language, the Convention is, to a great extent, merely declaratory of existing law, as expounded in the *Trail Smelter* arbitration. Thus, Article 3 entitled 'Principle' provides that:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

For the rest, the Convention enjoins States to take steps to develop strategies and programs, including educational, which conform to the aims of the Convention, and to participate to the greatest extent possible in international cooperative measures to this end. Finally, it introduces the traditional processes for coping with disputes. At the same time, again inviting the argument that environmental protection is not yet *jus cogens*, it recognizes the right of withdrawal.

A further Convention on Climate Change was adopted at Rio.[70] Like the other document, this too reflects current international concepts of political correctness criticizing developed countries, and acknowledges

> that change in the Earth's climate and its adverse effects are a common concern of humankind, [and is] concerned that human activities have been substantially increasing the atmospheric concentrations of greenhouse gases, that these increases enhance the natural greenhouse effect, and that this will result on average in an additional warming of the Earth's surface and atmosphere and may adversely affect natural ecosystems of humankind.

Article 1 provides that, for the purpose of the Convention,

> 'Adverse effects of climate change' means changes in the physical environment or biota[71] resulting from climate change which have significant effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare.
>
> 'Climate change' means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.
>
> 'Climate system' means the totality of the atmosphere, hydrosphere, biosphere and geosphere[72] and their interactions.

The first Principle embodied in Article 3 of the Convention requires the parties to

> protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed countries should take the lead in combating climate change and the adverse effects thereof.

The Convention provides for international consultation and cooperation and for the same type of dispute settlement as is to be found elsewhere. Again, as if to emphasise that the provisions relating to climate change do not constitute *jus cogens*, parties are given the right to withdraw.

While these specific Conventions make no reference to times of armed conflict, it may be presumed that the injunctions contained therein are of general application. It must, however, be recognized that during conflict, environmental damage will almost certainly arise from the abandonment of war matérial, the discharge of explosive matter, the use or destruction of nuclear-powered equipment or vessels, as well as the destruction of oilwells or tankers. Moreover, during armed conflict the specific environmental conventions as well as the customary law is extended by the provisions of the Convention on the Prohibition

of Military or Any Other Hostile Use of Environmental Techniques[73] and of Additional Protocol I.[74]

The extent to which these documents, or the two International Law Commission Drafts, introduce criminal liability, they will be effective only as regards individuals, regardless of any official position they may hold in their State. In so far as the liability of the State itself is concerned, whether this is described as civil or criminal, the position is as it always has been. Any State which has suffered injury as a result of the acts occurring during armed conflict or otherwise will only be able to secure an injunction calling upon the offending State to cease and desist, accompanied by the payment of compensation, which may perhaps be described as a penalty. There remains, of course, nothing to prevent the Security Council from condemning a State which has been responsible for environmental damage to pay compensation or be subjected to sanctions, if it were decided in accordance with the views of the International Law Commission that such damage to the environment amounted to a crime against the peace and security of mankind. Presumably, this power would extend to damage caused to the environment as such, regardless of whether any particular State has also suffered injury.

Notes

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1. OXFORD ENGLISH DICTIONARY.

2. Peruvian Constitution of 1978, Art.123; Kiss, *Concept and Possible Implications of the Right to Environment, in* MAHONEY & MAHONEY, HUMAN RIGHTS IN THE TWENTY-FIRST CENTURY: A GLOBAL CHALLENGE (1993), at 551-554.

3. Exodus 23:29.

4. Deuteronomy 20:19, 20:20.

5. Roberts, *Judaic Sources and Views on the Laws of War*, 37 Nav. L. Rev. 221, 231 (1988).

6. United Nations Declaration on the Human Environment, Stockholm, 1972, 11 I.L.M. 1416, 1417 (1972).

7. *Id* at 1420. (Emphasis added).

8. 1982 World Charter for Nature, G.A. Res. 37/7, Annex, Preamble, 22 I.L.M. 455 (1982).

9. THIRD RESTATEMENT OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES, Sec. 601-602 (1987). (Emphasis added).

10. Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, 1967, Art. 9, 610 U.N.T.S. 10.

11. KISS & SHELTON, INTERNATIONAL ENVIRONMENTAL LAW (1991) at 339-40. (Emphasis added).

12. 1982 United Nations Convention on the Law of the Sea, *reprinted in* 21 I.L.M. 1261 (1982).

13. 1991 Protocol on Environmental Protection of the Antarctic Treaty, 30 I.L.M. 1455.

14. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), *reprinted in*, 16 I.L.M. 1391 (1977), Art. 54, paras. 2 & 3.

15. "The interacting system of a biological community and its nonliving environmental surroundings," STOLOFF, ENVIRONMENTAL LAW DICTIONARY (1993).

16. Artikel auf Teutsche Landsknechte, *quoted in* CORPUS JURIS MILITARIS KRIEGSRECHT UND ARTIKELS BRIEFFE, (Schukzen ed. 1693).

17. Churfürstlich Brandenburgisches Kriegsrecht, *quoted in id.*

18. Kriegsvölkerrecht - Lietfaden für den Unterricht (The International Law of Warfare, Instructional Guidelines) Part 7, para.3 (German Forces Publication ZDv 15/10, 1961).

19. "Use your own property in such a manner as not to injure that of another," BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND, Vol. 3, 10th ed. 1787, at 217.

20. 1938/1941, 3 U.N., Reports of Int'l Arb. Awards 1905, 1938 resp., at 1965.

21. Mickelson, *Rereading Trail Smelter*, 31 Can. Y.B. Int'l Law (1993) 219, 230.
22. *Id.*, 232.
23. *Nuclear Tests Cases, Preliminary Objection* [1973] I.C.J. 99, 102; 135, 139.
24. *Nuclear Tests Cases* [1974] I.C.J. 253, 457.
25. *Id*, at 253, 257; 457, 461.
26. [1973] I.C.J. 3, 7; 49, 54.
27. [1993] I.C.J.467; [1995] 3.
28. U.N.G.A. Res. 1653(XVI), *reprinted in* THE LAWS OF ARMED CONFLICTS (Schindler & Toman eds. 1988) at 129.
29. U.N.G.A. Res. 2936 (XXVII), *id.*, at 159.
30. *See* BOTHE, PARTSCH & SOLF, NEW RULES FOR VICTIMS OF ARMED CONFLICTS (1982) at 188-191; *see also*, Green, *Nuclear Weapons and the Law of Armed Conflict*, 17 Denver J. Int'l L. & Pol., 1, 24-6 (1988).
31. 4 WHITEMAN, DIGEST OF INTERNATIONAL LAW, 586.
32. *Ryuichi Shimoda* v. *The State*, 32 I.L.R. 626.
33. *Id*, at 634.
34. *See* interview with Daniel Snowman, 16 July 1963, "I never lost a wink of sleep over Hiroshima," *reported in* The Times (London), 31 July 1995.
35. 1907 Hague Convention No. IV, Respecting the Laws and Customs of War on Land (with Annexed Regulations), 18 Oct. 1907, *reprinted in* Schindler & Toman, *supra* n. 28 at 63, 71.
36. *Id*, at p. 635.
37. *In re Yamashita* (1945), 13 Ann. Dig. 255.
38. Reported as *Abbaye Ardenne Case* (1945), 4 Law Reports of Trials of War Criminals 97 (the relevant extract from the unpublished text of the Judge Advocate's summing-up will be found *in* GREEN, ESSAYS ON THE MODERN LAW OF WAR (1985), ch. XIII, 'Canada's Role in the Development of the Law of Armed Conflict', at 269-71.
39. Convention on the International Liability for Damages Caused by Space Objects (1972), 24 U.S.T. 2389; T.I.A.S. 7762; 961 U.N.T.S. 187.
40. Canadian Secretary of State for External Affairs, ltr no. FLA-268 of 23 Jan. 1979, *reprinted in* 18 I.L.M. 899 (1979).
41. *See, e.g., South West Africa Cases (Second Phase)* 1966 I.C.J. 4.
42. *Case concerning the Barcelona Traction, Light and Power Co. Ltd. (Belgium v. Spain)* [1970] I.C.J. 3, 33.
43. *See, e.g.*, KISS & SHELTON, *supra* n. 11 at 350-51.
44. Art. 1(b), Convention on Long-Range Transboundary Air Pollution, 1979, T.I.A.S. 1054-1; 18 I.L.M. 1442, (1979).
45. *See* n. 35, *supra*.
46. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, 31 U.S.T. 333, T.I.A.S. 9614; Schindler & Toman, *supra* n. 28 at 163.
47. All of the living material in a given area.
48. The crust of the earth.
49. The water on or surrounding the surface of the globe.
50. The whole mass of air surrounding the earth.
51. *Supra*, n. 14.
52. BOTHE, PARTSCH & SOLF, *supra* n. 30 at 348.
53. *Shimada Case, supra* n. 32.
54. *Supra* n. 14, Arts. 86 & 87.
55. Statute of the International Court of Justice annexed to the Charter of the United Nations, (1945), T.S. 993; 3 Bevans 1153.
56. Vienna Convention on the Law of Treaties, 1969, 1155 U.N.T.S. 66; 7 I.L.M. 679 (1969).
57. Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III), 1980 Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, 27 Oct 1980, 19 I.L.M. 1523; Schindler & Tolman, *supra* n. 28 at 190.
58. *See e.g.*, Green, *The Environment and the Law of Conventional Warfare*, 29 Can. Y.B. Int'l Law 222 (1991), at 231-5.
59. Report of the International Law Commission on the Work of its Twenty Ninth Session, *reprinted in* 16 I.L.M. 1249 (1977) at 1251.
60. *Supra* n. 32.
61. Report of the International Law Commission on the Work of its Forty-Third Session, *reprinted in* 30 I.L.M. 1563 (1991) at 1584.
62. 30 I.L.M. 800 (1991).
63. *Id.*, Art. 1(vi) and 1(viii), respectively.

64. International Convention on Oil Pollution Preparedness Response and Co-operation, 1990 *reprinted in*, 30 I.L.M. 733 (1990).

65. United Nations Conference on Environment and Development, Rio de Janeiro, June 3-4, 1992. *See* 31 I.L.M. 814 (1992).

66. *Id.*, Declaration on Environment and Development, June 14 1992, at 876.

67. Emphasis added.

68. 31 I.L.M. 822 (1992).

69. *Id.*, at 822-823. (Emphasis added)

70. United Nations Framework Convention on Climate Change, 1992, *reprinted in* 31 I.L.M. 849 (1992).

71. All of the living material in a given area; often refers to vegetation.

72. This term appears in the American Geological Institute's *Glossary of Geology*, 1972, as synonymous with lithosphere, defined as "the solid portion of the earth as compared with the hydrosphere and atmosphere."

73. *Supra*, n. 46.

74. *Supra*, n. 14.

Chapter XXV

Comment: State Responsibility and Civil Liability for Environmental Damage Caused by Military Operations

Dr. Glen Plant*

It is significant that the title of this panel starts with the words 'State Responsibility *and* Civil Liability' (emphasis added), because, as the two speakers have ably pointed out, resort to State claims based on responsibility under public international law is rare in respect of environmental harm occurring even in peacetime, let alone as a result of military operations (including in time of armed conflict), and so resort to civil liability approaches is of potentially greater importance.

In this context I should be quick to point out that I too do not regard the *Trail Smelter Case* as a true environmental case and thus to this extent agree with the quotation cited by Professor Green to the effect that it is more of a model than a precedent for State responsibility in this area. *Trail Smelter* concerned pollution damage, of course, but this resulted in claims concerning harm to property, not harm to the environment *per se*. Since the essence of State responsibility for trans-boundary polluting acts lies in the occurrence of harm, and not the mere occurrence of a wrongful act (unlike in other areas of State responsibility, where harm as such is not a prerequisite), this is of potential significance where damage occurs to elements of the environment *per se* that cannot be characterised as property. Thus, in the State responsibility context, the significance of Professor Adams' and Professor Greenwood's point that much environmental damage in the Gulf War was already covered by Hague Law principles, is limited.

I hasten to say I am not a tree hugger; I seek to preserve only the fundamental environmental values I referred to in my intervention yesterday. Do not make the mistake, however, that these values are matters only for the upper echelons of command. Local attacks are quite capable of taking out vital elements of whole species' habitats, or even entire ecosystems.

The main legal significance of *Trail Smelter*, however weak its legal origins (ably pointed out by Professor Green), was merely its recognition of the emergence, in embryonic form, of this new area of State responsibility. That of the Stockholm Declaration on the Human Environment of 1972, cited in part by Professor Green, is the elaboration, in Principle 21, of the *sic utere tuo* principle in its application to

the environment, extended to include the global commons. It follows that I accept Professor Green's argument that the environment has been an object of protection in wartime since ancient times and that there are some parallels between Biblical and modern texts, but this is, essentially, only in so far as the 'environment' coincides with owned property and, incidentally, only if one takes an anthropocentric view of the environment - *i.e.*, one describes it as merely the environmental elements necessary for man's survival.

I also accept, therefore, that these texts differ in another, fundamental, respect. The Stockholm Declaration, and a number of 'environmental' treaties reflecting Principle 21, as well as State practice, are concerned to an increasing degree with protecting the environment *per se*. They are also, and this is important, increasingly concerned with doing so by prior, preventive action and mechanisms, and not by mere posterior consequence-sorting. Professor Green is entirely correct in this regard to emphasize the role of international supervisory/ negotiation-facilitation mechanisms, and it is in this context that methods such as environmental impact assessment (EIA) and other manifestations of emerging or developed customary law principles of cooperation and precaution (and, indeed, State responsibility principles themselves) should be viewed. I agree with the two speakers that it is not always easy to see how such mechanisms can be applied in relation to military operations. Of course, environmental damage will occur in time of armed conflict. Of course, the military cannot suspend fighting while the Army Board of Environmental Impact Assessors conducts a full-blown (peacetime-type) EIA, but it does not follow that equivalent principles and mechanisms cannot be applied in a suitable, limited manner during military operations.

These can be applied to protect not merely property interests, but also the environment *per se*. Indeed, the law of war has already come expressly to concern itself with the environment *per se*, in so far as Articles 35(3) and 55 of Additional Protocol I to the 1949 Geneva Conventions represent emerging norms. They refer to the 'natural environment', which is to be broadly interpreted, according to the International Committee of the Red Cross (ICRC) Commentary (at p.662), to comprehend not merely objects indispensable to the survival of the human population, but also forests and other vegetation mentioned in Protocol III to the 1980 'Inhumane Weapons' Convention, as well as 'flora, fauna and other biological and climatic elements'. The questions are, 'is the existing protection adequate and what role does State responsibility play in this?' I will try to refer, in answering these, to a number of the speakers' points.

Before I do so, however, I make three more preliminary points. I think any talk of liability for the transboundary injurious consequences of acts not prohibited by international law merely serves to confuse. The International Law Commission (I.L.C.) is misguided in applying this concept to environmental harm, because the 'lawfulness' *vel non* of the act is irrelevant. State responsibility arises from the harm

caused across State boundaries by a polluting act, not from the supposed nature of the act itself. Professor Greenwood is right to say the application of the I.L.C.'s work on this topic to armed conflict would be controversial; fortunately, the I.L.C. was wise enough to exclude armed conflict from its scope.

Second, I think over-emphasis on the existence *vel non* of putative personal and State criminal liability in parallel with State responsibility should be avoided; the international community's seeing fit to criminalize acts is good evidence that the same acts may involve the responsibility of a State, but this is a roundabout way of doing things. The same goes for the concept of *jus cogens*. Either State responsibility arises or it does not; it is simply a matter of examining the relevant State practice and applying the relevant law (including in respect of *erga omnes* obligations). Either State responsibility is a useful primary device to enforce environmental protection or it is merely an important residual method of last resort when other mechanisms of control or redress have failed. It is, in my view, the latter, at least in peacetime contexts.

The usual approach to regulating serious international environmental problems is through framework conventions, later supplemented by optional protocols dealing with specific aspects of the problem. The last protocols to be considered are always those on State liability. Few actual State claims can be traced. No State brought international claims in respect of harm arising out of the Chernobyl nuclear disaster, partly because of the many difficulties surrounding bringing successful claims, outlined by the speakers, and, I suspect, because people who live in glass houses do not throw stones, but it is perhaps significant that Sweden and the U.K. reserved their rights to do so. State claims are also occasionally brought in respect of marine pollution, and Professor Green has mentioned the 'outer space' example of Canada's claim in respect of the nuclear-powered Soviet satellite, Cosmos 954, which crashed on its territory.

There are other reasons why State responsibility has only a residual role. First, certain environmental problems simply cannot be laid at the door of individual States. Enhanced global warming, depletion of the stratospheric ozone layer and, to a large extent, loss of biological diversity, result from the combined actions, or inaction, of all States and require global, co-operative solutions. Even where a single, notorious course of action, such as that of Iraq during the Gulf War, can be identified as significantly contributing to one or more of these phenomena, it is difficult to identify precisely what contribution was made to the complex processes and harmful results involved. This is, happily, no longer true of long-range transboundary air pollution (and I refer to the 1979 E.C.E. Convention and its Protocols cited by Professor Green), as a result of technological developments.

Equally significant, perhaps, is the ineffectiveness of a traditional corollary to State responsibility in cases of breach of multilateral treaties (and international environmental law is mostly contained in treaties or in so-called 'soft law'

instruments—where, of course, there is no question of State responsibility), the exclusion of the Party in breach from the benefits of the treaty. With the exception of a few treaties, such as, at present, the 1973 World Heritage Convention, the 1992 Framework Convention on Climate Change, the 1992 Biological Diversity Convention, and the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer, under which (essentially developing country) Parties can obtain financial assistance from a fund and/or technical assistance, no environmental treaty provides for Parties benefits that outweigh the burdens to an extent that the environment will not suffer more from the expulsion of a State than that State will from that expulsion. This is equally true in time of armed conflict, whenever such treaties continue to apply.

One of the difficulties, mentioned by the two speakers, surrounding the concept of State responsibility in this field, is the uncertainty concerning the standard of liability to be applied, whether it is in the nature of strict/absolute or, alternatively, fault-based liability. The treaties and other instruments, judgments and State practice are not consistent on this, but it is perhaps significant that, as I have mentioned, States have been most willing to bring international claims in respect of nuclear, marine pollution and outer space-related incidents, all of which can be classified as 'ultra-hazardous', and in respect of which the evidence of a standard of strict liability is strongest. On the contrary, there is, in my view, an overwhelming case for a standard of due diligence in relation to 'non-ultrahazardous' activities causing transboundary harm. But what relevance has this to military operations?

I think we would agree that many military operations are 'ultra-hazardous' in the sense that, while we do not necessarily criticize them, we just do not want to be around when they are happening. I think the treatment of certain activities in peacetime as 'ultra-hazardous' in this context is judged less in terms of their 'ultra-hazardousness' for the environment *per se* than that for human health and property interests. The same must be true in time of armed conflict, but I can see no good argument, given the nature of armed conflict, for not applying a standard of due diligence, rather than strict liability, to State responsibility for environmental damage at such time. Indeed, a due diligence regime arguably has a greater deterrent effect than a strict liability regime, absent an adequate selection of defenses under the latter, and so leads to higher standards in practice. But any peacetime judgment of what is required of a State by due diligence obligations in peacetime cannot be automatically imported into armed conflict situations. In practice, the application of the standard will lead to different results. What these will be, of course, depends on a proper interpretation of both law of war norms properly speaking and of any general customary or treaty law environmental standards that continue to apply in wartime. And, you will gather, I am not a strict '*lex specialis*-merchant' in this field.

I think, like Professors Meron and Szasz, this last issue is the key one to be taken forward from experts' meetings, such as this, by way of fuller scientific study. For what it is worth, I have obtained a Research Fellowship in the Centre for Environmental Law and Policy (LSE) from the Commission of the European Communities for a Ph.D. student, who, in connection with the preparation of her doctoral thesis, is beginning to examine a long list of 'environmental' treaties (and we are told there are over 900) for evidence of their potential applicability *vel non* in situations of armed conflict or other emergency starting with international armed conflict. This clearly involves examining a number of matters referred to by Professor Meron.

The process is at its early stages, but even a superficial analysis has revealed that some such treaties have been applied in whole or in part (and on a full or an interim basis) in time of armed conflict, including international armed conflict, such as, during the Gulf War, the 1990 Oil Pollution Preparedness and Response Convention and the 1978 Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution. In addition, other treaty provisions, it has been seen, are clearly applicable during international armed conflict. Consider marine pollution, for example. I leave aside the whole question of the relationship between the particularly important environmental protection provisions of the 1982 Law of the Sea Convention and the law of naval warfare, which Professor Walker has discussed in the context of the San Remo Manual, in the drafting of which the two speakers played important roles. All I would say about this is that the choice of 'due regard' and other language (*e.g.*,in its paragraph 11) in preference to 'respect' in relation to means and methods of warfare and environmental protection, is a great advance in terms of helping bring the law of naval warfare up to date in respect of most situations, but perhaps neglects to adequately protect vital environmental elements in particularly sensitive sea areas of special importance, for example because of their biological diversity or significance as ecosystems.

The general treaty aside, it can be said that a number of Antarctic Treaty Consultative Parties' agreements on the Antarctic marine environment and International Maritime Organization (IMO) treaty provisions continue to apply in wartime. The 1972 Regulations for Preventing Collisions at Sea (Colregs), annexed as they are to a treaty, are applied, absent inconsistent national regulations, by English, U.S. and other Courts of Admiralty, in wartime and to warships as well as merchant ships. This is equally true of Rule 10, which governs traffic separation schemes, and new amendments to the Convention for the Safety of Lives at Sea (SOLAS). Regulations permit mandatory ships' routing and ship reporting measures to be prescribed and implemented, with IMO permission, as measures supplementary to the Colregs. I can see no reason, except perhaps that SOLAS 1974 does not apply to warships, why such traffic measures should not

continue to apply in time of armed conflict for the safety of traffic and so environmental protection, and thus why State liability cannot arise from breaches of their provisions.

In truth, however, States prefer to leave issues of compensation for environmental law in peacetime to the vagaries of national law. They confine their roles to merely encouraging the adoption of domestic rules on equal access and non-discrimination for the benefit of foreign environmental claimants in domestic courts, or, in the cases of 'ultra-hazardous' risks, to establishing international joint compensation schemes involving, as I have explained, strict liability. In so far as such 'insurance' schemes are based on treaties, the marine pollution ones, for example, are partly treaty-based and partly derived from industry agreements—I can see no good reason why they should not continue to operate in time of international armed conflict. Be that the case or not, it remains that liability is directed and limitable in a manner not applicable to State liability and that many surrounding issues, such as the calculation and quantification of 'pollution damage' are still left to national law. Despite some attempts to permit meaningful recovery for harm to the environment *per se* in some jurisdictions as in the U.S. *Zoe Colocotroni* and *State of Ohio* Cases (and some downright extravagant efforts in Italy!), in general only token damages are allowable. It follows that, even if international joint compensation schemes apply, as I argue they do, to damage arising from military operations in time of armed conflict, and even if the relevant government or other entity is willing and able to bring a claim *pro bono publico*, this is likely to be of limited value in ensuring that compensation is received for damage to the environment *per se*. In short, I agree with Chris Greenwood about the limited role of compensation mechanisms in facilitating environmental protection against military operations. In fact, I can defuse your fear that I am going to go on and on and on by saying now that I agree with everything not already discussed that Professor Greenwood has said in his paper. I close then, with only a few more questions.

First, is not the speakers' conclusion on the absence of a true *actio popularis* for the benefit of the environment eroded to some limited degree by the recognition by the I.C.J. as early as the *Anglo-Norwegian Fisheries Case* of 1951 that certain States might have enhanced interests and responsibilities by virtue of being a regional ('environmental') Power? In this respect, it is interesting to note that not only has the New Zealand Government recently attempted to re-activate the *Nuclear Tests Case* on environmental grounds, but that, in 1973, it adopted the act of one of its naval captains in offering assistance to protest vessels with which New Zealand had no diplomatic/jurisdictional connection, except perhaps that it was a regional Power with environmental concerns witnessing the seizure (by France) on the high seas of a (foreign) vessel exercising a fundamental global right, the freedom

of navigation, for environmental protest purposes. Before 1995 is out there may be a fresh example of this.

Second, in respect of non-international armed conflict in particular, where 'peace-time' environmental treaty obligations presumptively continue to bind the State Party in question, is it not particularly important to note, as Professor Meron has suggested, that, increasingly, such obligations are not confined to being triggered by third States suffering transboundary harm? Increasingly, environmental treaties are seeking to control State Parties' degradation of their own environments. The Biological Diversity Convention's true significance lies here, to the extent that it is a treaty about conservation (as opposed to exploitation) of natural resources. Assuming that the political will to implement it is there, it is likely to have great significance for warring parties in a non-international armed conflict seeking to minimize their exposure to possible international liability under the treaty or customary international law.

And third, I conclude with a question, which is somewhat inspired by Dr. Fleck's paper and Mr Vest's impressive address. Is it not time for a thorough scientific study of all the issues raised at this Symposium, resulting in more than improvements to military manuals used by military lawyers? Should we not aim to produce a guide for the entire military, the most important constituency here, outlining both the relevant law and best environmental practice?

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Chapter XXVI

Panel Discussion: State Responsibility and Civil Reparations

Mr. Todd Buchwald, U.S. Department of State, Assistant Legal Advisor for Political Military Affairs: I want to thank Professor Grunawalt and the Naval War College for putting this outstanding Symposium together and for inviting me to participate as a moderator. This morning we heard several excellent presentations on the legal framework for protecting the environment during war. Several speakers have already alluded to the fact that, in addition to articulating the legal principles that apply, there are questions related to enforcement and in many ways these are areas where the "rubber hits the road." At least two areas of importance will be discussed this afternoon. One is the question of reparations, which we will examine now. Later we will hear from a panel on the issue of criminal liability.

We have assembled here an excellent panel to address State responsibility and civil reparations, both from the point of view of their qualifications and background, and also from the perspective that they are perhaps the most aptly named group we could assemble to talk about the environment—Professors Greenwood, Green, and Plant. [Laughter.] Professor Green is Professor Emeritus at the University of Alberta and has held numerous other university appointments, has served as a member of many delegations for the Canadian Government, and is the author of, among other works, "Contemporary Law of Armed Conflict". Professor Greenwood is Director of Studies in Law and University Lecturer at Cambridge and has also been a visiting professor at numerous universities both in Europe and the United States. His publications include the forthcoming "War and Armed Conflict in International Law". Professor Glen Plant, our commentator this afternoon, is at the London School of Economics and Political Science. He has taught at the Fletcher School of Law and Diplomacy and has served as a legal adviser in the Foreign and Commonwealth Office. We certainly have an excellent panel this afternoon. With that, I turn it over to Professor Green.

Professor Leslie C. Green, University of Alberta: Thank you sir. The purpose of my paper is to give a general introduction, a general survey of the topic. I will not be discussing problems of Bosnia or Serbia or even Ottawa. I would like to make one personal statement that does not appear in my paper, but I think has become urgent as a result of our discussions during the last day and a half. I was in the Far East when the atomic bombs were dropped, and as a member of the

British Armed Forces let me assure you that, at that time, I could not have given a damn for the effect on the environment or the effect of collateral damage where the enemy was concerned. I knew that this meant one hundred thousand prisoners of war, approximately, were not going to die; that I had five years in the service, untouched, and I was going to remain untouched and I was going home. To be quite honest, I am tired of hearing the breast beating and the *mea culpa* attitude fifty years later by people who do not know what they are talking about. I think that is something that is of extreme importance because I suspect that if we are engaged in general and long-term hostilities again, that will be exactly the reaction of the man in the field—officer, NCO, and serviceman alike. We ought not to forget it. Having said that let me deal with the environment.

Colonel Finch referred yesterday to the ancient Greeks in telling us that the issue of the environment has been of consideration for a very long time. If you look at the opening paragraphs in my paper, you will see I go further back; I go back to the Old Testament. In the wars of the Israelites, God had instructed that there shall be no damage to the fauna and flora unnecessary beyond that required for consumption by the forces. There is that beautiful statement, "are the trees the enemy of mankind." But, of course, in those days, the only form of punishment or sanction was divine. But the principles laid down in the Old Testament are in many ways akin, and I am not going to repeat them all, to those that we find in the Stockholm Declaration. If you compare those biblical statements with the principles laid down at Stockholm, you find, allowing for ideology and changing technology, we have not travelled very far. The only thing that I would repeat is from Stockholm—"States will cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdictional control of such States in areas beyond their jurisdiction." A very similar statement is to be found, dare I mention it, in the Third Restatement of the American Law Institute where again you have reference to the limits of national jurisdiction. Now if these statements in Stockholm or the Restatement are, in fact, declaratory of the established law, and there may be doubts as to whether this is so or how far they go beyond what is clearly established, there is no indication in any of them of personal liability nor any suggestion that an international crime has been committed. So far, there has been no indication of how the International Court would assess compensation due to a claimant State in respect to damage caused to the environment beyond the limits of its national jurisdiction.

The Court in the past has been very concerned: if you look at the *Southwest Africa Cases*, yes, you do have a grounding to bring an action, but no, you can not recover because you have not suffered any personal damage, and that causes all sorts of interesting problems. There is no way that it can be claimed that this legal obligation stems, for example, from the 1967 Treaty on Principles Governing the

Activities of States in the Exploration and Use of Outer Space, etc. Article 9 of that treaty refers expressly to damage to the environment, enjoining States when indulging in any form of space activity to avoid adverse changes in the environment of the earth. It sounds wonderful, but it is absolutely silent as to how liability for such damage may arise or how it may be dealt with. There is no suggestion that outside of any State's jurisdiction, which is *res communis*, that there is a right of an *actio criminalis*, and this raises all sorts of issues of international interest. An example of the concept of global commons, which this implies, appears in the 1991 Protocol on Environmental Protection of the Antarctica Treaty, designated a natural reserve devoted to peace and science. The only obligations that are really imposed, are obligations to postulate rules and procedures concerning liability for damage, while Articles 18 to 20 provide for settlement of disputes by consultation, the World Court, or the Arbitral Tribunal envisaged by the Protocol itself. There are no general principles therein.

It was not until Additional Protocol I, of 1977 that we really find a legal obligation, an allegedly enforceable obligation, to recognize, during conflict, the needs of the environment. First, we can take environment in the widest sense—you have the provision against starvation. A much more important provision than damage to the environment, whatever that means. But here we have a clear provision relating to humankind and that has not been stressed. While this is very similar to the Biblical injunctions, and again, I say look at those Biblical injunctions, one tends to look at the classics of international law or even to Leman Phillipson on Rome and Greece, and the like. Teddy Meron has taken us to Henry V and some of his precursors, but I fear there is not enough concern in the schools of law for the history of the law of nations. It is sort of assumed that it grew, I suppose, like Venus out of the sea but, in fact, if you look at the ancient law on issues of this kind they were much more advanced than we were ten years ago, in many ways than we are today. It is worthwhile paying attention, especially when one hears, "Oh well! You are trying to do something new that has not happened before." No, when the religioso tell us that we are trying, remind them that if they are religioso, they are obliged by their own religions, and it applies to all three major religions to recognize these obligations. But they do not know it, and we do not do enough to tell them. The injunction of the Old Testament was only divine. The injunction of the Protocol is criminality. The military codes of the feudal period also dealt with this problem long before we thought of dealing with it, and they made it clear that for a military man to attack agricultural equipment, was in fact, a capital offense. You did not attack the necessities of human life. This was not only true in the rebellions of the feudal period, but even when you were engaging in the 100 Years War abroad. One should pay much more attention to these things than we tend to do. Each of these codes was localized: they did not attempt to internationalize, although Lieber in one of his articles makes it clear

that Americans operating against the enemy, or even enemy subjects who are captured, would in certain circumstances be liable to punishment including for this type of offense.

From the point of view of liability, we have not had much on the international enforcement side. We have had the old Roman law principle which we are told underlies the only leading international decision we have to date the, *Trail Smelter Case*. People tend to forget that the *Trail Smelter Case* is limited in its application because the tribunal was told to apply the law and practice followed in dealing with cognate questions in the United States, as well as in international law and practice and to give consideration to the desire of the high contracting parties to reach a solution which introduces much more national law and equitable principles, than solid international law. So one must be careful how far one uses the *Trail Smelter Case* as an argument of responsibility if you injure another State's environment, or in the wider sense, its fauna and flora, as a result of your activities against or affecting the global environment.

During the decisions or debates in the World Court on the French nuclear tests—for a variety of reasons, the Court was saved the necessity of having to consider whether the French tests would or would not affect the environment and would or would not create a claim against France by either Australia or New Zealand, or anybody else, because of the injury to the environment as such. Whether in the new advisory opinion requested by the U.N. General Assembly on the legality of nuclear weapons, or if they were to reopen the New Zealand case against France, the Court would take its courage in its hands and deal with the problem of liability for damage to the environment, I suppose it would be both interesting and depressing. When we do look to the problem of the *sequitur* rule and the environment of one State being adversely affected by the activities of another, we have to be careful how far we carry our claims. Remoteness becomes extremely important, as we saw in the *Trail Smelter Case*.

If we look at the problems created by Chernobyl, for example, hundreds of miles away from the original source of the damage alleged from the breakdown; if we listen to what is now being heard about the "Gulf War Syndrome," the difficulties of linking the consequences to the alleged cause show how dangerous it is to assume that it must be a result of environment damage. The practical issues are extremely important and difficult. What I found very interesting was to reread, in this connection, the Tokyo District Court decision of 1963 concerning the legality of the atomic bombs. There are some fascinating statements in that decision. It said that the bombs were comparable to the use of poison and poisonous gases. Their dropping may be considered as contrary to the fundamental principles of the law of war concerning the prohibition of unnecessary suffering. It went on to make a very interesting statement concerning responsibility. It quoted Article 3 of the

Hague Convention on the liability of the belligerent for all actions of those under its command, and it said:

> Since it is not disputed that the act of atomic bombing on Hiroshima and Nagasaki was a regular act of hostilities performed by an aircraft of the US Army Air Force, and that Japan suffered damage from this bombing, it goes without saying that Japan has a claim for damages against the United States in international law. In such a case, however, responsibility cannot be imputed to the person who gave the order for the act, as an individual. Thus, in international law, damages cannot be claimed against President Truman who ordered the atomic bombing as it is a principle of international law that the State must be held directly responsible for an act of a person done in his capacity as a State organ and that person is not held responsible as an individual.

What is interesting is that the decision on the atomic bomb was made after the decisions in the *Yamashita* and the *Kurt Mayer Cases* concerning the liability of a man who does give an order. Of course, if one were to look at the 1977 Additional Protocol I, we would find that, assuming the statements of the court concerning the legality of the bombing were correct, President Truman would be liable. We thus have a strange decision considering the date at which that decision was delivered.

There have been various efforts in the law of peace to deal with specific areas of the oceans, pollution, overfishing, etc. Again, it becomes clear we are not really concerned with the general issue, the issue of damage to the environment. In the Convention on International Liability for Damage Caused by Space Objects, a launching State shall be absolutely liable to pay compensation for damage. The term "damage" means loss of life, personal injury, other impairment of health, or loss or damage to property, natural or juridical, including property of international governmental organizations.

This brings us close to our debate this afternoon. How? The issue of the damage caused by Cosmos 954 over Canada is illustrative of what the position is. We talk about strict liability, but the only way in which you can enforce your claim for international responsibility is traditional; either diplomatically, by arbitration, or by judicial settlement. In the Cosmos 954 case it was settled diplomatically and not very much to the satisfaction of my country, but then I gather that one is always faced with the issue, the plaintiff claims more, the defendant offers less, both sides knowing that the figures quoted are not the final ones. Nevertheless, we in Canada feel we got the sticky end of the stick—and I assume we are going to get it again as a result of the negotiations with the United States over the cleaning up of former U.S. bases in Canada.

Other problems arise with such agreements as the Long Range Transboundary Air Pollution Agreement which again talks about direct responsibility, and the need for compensation, but again requires direct damage to a State and makes no

provision other than the traditional ones. So whatever we do, whether we look at the Modification Technique Convention, whether we look at the Additional Protocol I, Articles 35 and 55, we are still left with the same theme—personal liability if you can attach it to a particular identifiable individual. But bear in mind, if we are engaged in hostilities, by and large injury to the environment will only be a consequence of a policy decision or of a High Command decision. It is not going to be the decision of the man in the field. If it were his decision, we would get him every time he left an undischarged cartridge lying on the ground because that too is pollution; every time a tank driver tipped his tank over the side and left it. We may know who the driver of the tank is, but it does not arise. In the pollution issues, it is high policy. We do not have any principle at the moment for the prosecution for the criminality of a State if we still stick to the sort of statement in the Japanese *Shimoto Case*, or if we go on the traditional level, a State is responsible for the acts of its organs and basically, if we are seeking compensation, civil liability. I do not want to go against the man. He does not have the funds that I want. It has got to be against the government. How do we do this?

The International Law Commission (I.L.C.) has talked about international criminality against such fundamental principles of law as relate to the preservation of the environment. With great respect, I would like to know what those fundamental principles of law are. There is too much talk in the I.L.C. or in the Vienna Convention on Treaties, on *jus cogens*. What is *jus cogens*? It is anything I feel I would like to elevate or that you feel you would like to elevate, because nobody has attempted to define it. It is some sort of wonderful "concept up there." A fundamental principle which is so fundamental that everything else is unimportant. Professor Meron and I probably disagree, basically, on what he regards as *jus cogens* in the field of human rights and what I would regard as *jus cogens*. Professor Meron and I have disagreed on that sort of thing before. There are no doubt other issues on which Professor Meron and I would disagree on *jus cogens*. But on one thing we are equally convinced—he is convinced that his conceptions of *jus cogens* are correct and I am convinced that mine are correct. What is the value of putting that sort of nonsense into an international document? It sounds good, but it means less than the paper that it is written on. Again, I think one ought to look at "a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment." It sounds like a ten-year-old school child telling us what he believes in, without paying the slightest attention to what the reality is. Again, the draft on International Crimes Against the Peace and Security of Mankind; I read this with great care. Article 1 - crimes under international law are defined as crimes against peace and security of mankind. Article 26 - an individual who willfully causes or orders the causing of widespread, long-term and severe damage to the natural environment shall, on conviction, be sentenced to whatever it is. They do not tell

us what this is. They do not define the natural environment. They do not define widespread, long-term and severe, it is just there.

I said I would not talk about Iraq. Iraq is an example of how compensation is being achieved, through the medium of a Security Council obligation—the establishment of a special commission; not a general commission. The whole situation remains what it has traditionally been. If you want civil reparation, if you want reparation of any kind for damage to the environment, the law requires that you prove that you, or your interests, have suffered direct injury. There is no point of talking about damage to the environment outside any State's jurisdiction. We do not have the *actio communalis*. As international law exists today, arbitration and judicial settlement, for the main part, depend on consent, and the defendant State, most frequently, is not going to come.

If anybody thinks Serbia will surrender Karadzic for trial at the Hague they need to reexamine the political situation and the realties. I have never heard such nonsense as I read in the *New York Times*. If Karadzic were to come to Geneva to a peace agreement, he would be arrested and handed over. Do not believe it. England said the same about Ian Smith over the Rhodesian Unilateral Declaration of Independence. When he came on the ship to discuss the issue of how to settle it, the government said, "You were brought here to discuss peace; we can not arrest you on a treason charge, though we know you are guilty of treason." And the same thing applies here.

We would again have to rely on the traditional processes for international responsibility—suit for damages. We may pretend, through the medium of a Security Council Resolution, that the damages are a penalty, that the damages are a sanction. A sanction is a punishment and, therefore, we are getting civil responsibility in the form of a penalty by dressing it up in a Security Council Resolution instead of describing it as a normal process of international enforcement of an international claim, whether of the customary international law of armed conflict, or the treaty law of armed conflict. Breach of the treaty law where a State is concerned is still a tort in international law. It is not a crime. Even if we had an international criminal court, who would we be proceeding against? The head of State? The commander? It would not be a prosecution of the State. There would be no change in the legal system as we know it at the present moment. Thank you.

Mr. Buchwald: Thank you Professor Green. We will now turn to Professor Greenwood.

Professor Christopher Greenwood, Cambridge University: Thank you very much Mr. Chairman. Ladies and Gentlemen. Professor Green is a hard act to follow. Not least because I have learned one very important and fundamental truth;

not just about the concept of *jus cogens*, but also that a ten year old school child—and I am the father of one of these creatures—a ten year old school child can be defined as a very serious threat to fundamental environmental interests. It is clear Leslie, that you have met my daughter.

Now the purpose of my paper today is to look at two questions. First of all, when is a State responsible in international law for damage caused to the environment in time of armed conflict and, secondly, what affect in protecting the environment do these principles of State responsibility really have? I have tried to set out the argument on both of those points in the paper that has been circulated to you. This is a famous first for those of you who have been to conferences with me before; the idea that Greenwood would ever provide a text of one of his papers in advance is really quite extraordinary and shows how effective the United States Government contracting system is.

I can only apologize to you, however, that the paper is not longer. I had thought I had written a long one, but I realize now that I cannot compete with Professor Walker for the sheer number of authorities cited, and I certainly cannot compete with Professor Green because all of my authorities are earthly rather than divine.

Now, Mr. Chairman, the basic principles of State responsibility in this area are very straight forward indeed. Under international law, a State is responsible if there is conduct of its agents or some other persons which is imputable to that State and if that conduct violates a rule of international law. It is a principle that is so well established that it barely needs quoting—which is why it is no doubt quoted in every text book. Once established, State responsibility means that the State concerned has a duty to compensate the damage caused; that it may expose itself to the risk of retaliation, and indeed looking at it in a more preemptive sense, the likelihood of being held to account under the principles of State responsibility ought to have a deterrent affect. After all, it has had a deterrent effect in terms of ordinary domestic law of civil liability. A company is deterred from polluting the environment partly because it knows that the financial implications of being sued for the damage it has done are very serious indeed.

That basic principle of State responsibility applies to the breach of all rules of international law including those for the protection of the environment. It also applies to breaches of principles of the law of armed conflict. A State is responsible in international law if its agents or those who acts are imputable to it, violate a rule of the law of armed conflict, including one of those rules of the law of armed conflict that deals with environmental protection. I will not go over them again, we spent the morning discussing their content. I would just mention in passing that I belong to the school of thought that believes a rule can in fact protect environmental interests even if it does not have the word "environment" put prominently in its title.

One could, however, just mention briefly two special rules, relating to State responsibility for the acts of the military, which have effects on the environment. The first is that the principles of State responsibility for the acts of armed forces is more extensive than the law of State responsibility is in relation to acts of other, nonmilitary, agents. If you look at Article 3 of Hague Convention IV of 1907, or Article 91 of Additional Protocol I of 1977, they both make clear that a State is responsible for all of the acts of its armed forces in armed conflict. It is clear that if you look at the *travaux preparatoires* of the 1907 agreement that that was intended to remove the scope for arguing whether the individual soldier who commits the wrong was acting in a wholly private capacity or was acting as an agent of the State. In principle, that question becomes irrelevant because the State is internationally responsible for his acts whether he is acting in his official capacity or not. So that in the context of damage to the environment done by a retreating army where discipline has completely broken down and individual soldiers were committing acts of arson, looting, and pillage, those acts would still be acts for which their State was responsible in international law. The notion attributed to one Iraqi spokesman, as quoted by Mr. Arkin yesterday, that "What the military does is not what the government does," is quite simply wholly unsound in international law.

The second special principle that I refer to briefly in my paper is that we need, I think, to distinguish very carefully indeed, between responsibility of the State for a violation of the law of armed conflict and the potential responsibility of the State for a violation of Article 2(4) of the Charter. A State that invades its neighbor commits a wrongful act by the very fact of that invasion, and will incur State responsibility as a result even if its armed forces thereafter fight the war entirely by the book, abiding by every principle of humanitarian law and the wider law of armed conflict. Now I think it is quite different if you look at the world of war crimes, and I would here just briefly dissent from something that I think Leslie Green was saying. The responsibility of the State in international law is not in any way antithetical to the individual criminal liability of the serviceman. The two are intended to be complimentary, not mutually exclusive. They differ in this very important respect; the State may be held responsible for the illegal act of invading its neighbor, but the individual serviceman may not. The individual serviceman's criminal responsibility is limited to breaches of the *jus in bello*. The State's responsibility can embrace the *jus ad bellum* as well.

Now all of those rules are straightforward. The fact of the matter is, however, they are hardly ever applied. The number of cases to which there has been any serious reference to the principles of State responsibility, either for violating the laws of war or for violating the U.N. Charter, can be counted on the fingers of one hand. That is why it is important to look at the current precedent of the United Nations Compensation Commission for Iraq because that has the potential—I put it no higher—to set a very important precedent indeed that might perhaps serve

to put these principles of State responsibility in the context of armed conflict back on the road; to make them a serious player once again.

We have already touched on the fact in earlier sessions that Security Council Resolution 687 reminds Iraq that it is responsible for direct loss, injury, or damage, including environmental damage and the depletion of natural resources, resulting from the unlawful invasion and occupation of Kuwait. Now the basic principles of State responsibility, of course, existed under ordinary international law. They were not created by the Resolution. What the Resolution creates is the mechanism for giving affect to those underlying principles. The skeleton of Resolution 687 is fleshed out in a series of decisions of the Governing Council of the Compensation Commission. The most important of which, for our purposes, are Paragraphs 34 and 35 of Decision Number 7, and I have quoted the relevant passages in my paper. What the Council decided is that, in principle, Iraq could be held to account for loss suffered as a result of military operations by either side during the Gulf Conflict; that Iraq could be held for account by the acts of its agents and other officials or entities connected with the occupation or invasion. That is effectively taking the principle in Article 3 of the Hague Convention but extending it beyond the armed forces to include a general principle of responsibility for the acts of civilian agents of the Government of Iraq as well. Thirdly, Iraq is responsible for damage and loss resulting from the breakdown of civil order in Iraq and Kuwait. The Decision also goes on to indicate the types of environmental damage which, in principle, could be the subject of compensation. The cost of cleaning up the Gulf, the cost of dealing with the oil slick, of capping the fires in the oil wells, the affects on health, and so on are all set out in Paragraph 35 of that Decision.

Mr. Chairman, I suggest that there are two central features of the compensation commission system that we need briefly to look at. The first is that Security Council Resolution 687 and the Decisions of the Governing Council are all based on the principle that Iraq is responsible for the illegal act of invading Kuwait and that that is the basis for the responsibility that follows, not responsibility for violations of the law of armed conflict. There are one or two exceptions to that. For example, claims by members of the Coalition forces would have to be based on violations of the law of armed conflict. But the basic principle of Iraq's responsibility is for breach of the *jus ad bellum*, not for a breach of the *jus in bello*. Now that has enormous importance in terms of the environmental claims because it means that it does not matter whether the oil slick was in fact the product of a violation of the law of armed conflict by Iraq or an act legitimated by military necessity. In other words, the debate we had yesterday morning would not in fact be important in terms of the Compensation Commission's work. Now I said yesterday that I regard Iraq's act in releasing oil in the Gulf and setting fire to the oil wells as being a breach of the law of armed conflict. But there are other acts by Iraq that are much more difficult to assess, particularly those involved in land

degradation, the affect of the mining of Kuwait territory, the creation of defensive works there, and so on. None of that is going to be an issue.

Secondly, the affect of basing liability on the act of aggression rather than breaches of the law of armed conflict opened the way for the Governing Council to decide that Iraq could be held responsible for environmental damage caused by the Coalition as well as the damage caused by the Iraqi forces. So again, you do not have to show how much of the oil slick came not from Iraq's transgressions but from a tanker that was hit by the French Air Force or the RAF. It doesn't matter. It is still something which can be put down to Iraq.

On the other hand, the concept of direct loss may well give rise to considerable difficulties for the Compensation Commission. It is always difficult to prove causation in environmental claims and an environmental claim in wartime is likely to be more difficult still. Let me suggest to you four categories of claim that might be made. First, you have environmental damage resulting from acts of Iraqi agents acting in the exercise of their authority. In other words, acting under the direction of the State. There, responsibility is perfectly clear. Secondly, you can have damage caused by Iraqi agents acting in an unauthorized fashion. Once again, responsibility here is clear both under the general law, Article 3 of the Hague Convention, and also as a result of Subparagraph (a) of Paragraph 34 of the Governing Council's Decision. Thirdly, you have the case where environmental damage results from the activities of the Coalition forces, but those Coalition operations are legitimate acts under the law of armed conflict. It is an attack on a legitimate military objective carried out with all of the necessary precautions, but it still causes environmental damage. That is apparently going to be treated as a direct result of the unlawful invasion. Then you come, Mr. Chairman, to the fourth category. Let us suppose that the Coalition attacked a target in Kuwait, let us say an oil tanker in Kuwait Harbor, and that attack was a violation of the law of armed conflict—because the target was not a military objective, or the criterion of proportionality was not satisfied, or the customary law principles on protection of the environment have not been complied with—now to what extent, Mr. Chairman, can Iraq be held responsible for the illegal acts of the Coalition if there were any? How far does the breach of the law of armed conflict by the Coalition still engage the international responsibility of Iraq because it can be said to flow from the original and greater illegality of the invasion? Let me suggest to you something which might be controversial. I think it would be an outrage if Iraq were held responsible for illegal activities by Coalition forces and totally counter-productive in terms of trying to protect the environment. It would set a precedent that would be most unfortunate for the future.

Now very briefly, Mr. Chairman, let me say a little bit about "MOOTW," a word I have only learned to pronounce in the last couple of hours. So far as responsibility for environmental damage resulting from internal armed conflicts is concerned, I

think the crucial point here is that there will have to be damage to the environment or to the environmental rights and interests of another State. In other words, it would have to be the case that activity by the forces in the armed conflict taking place in State A had repercussions in the territory or on the fishing rights and interests of State B. Unless there is some cross border element, I do not see that State responsibility has a role to play here.

A much more difficult case, and I share the reservations of those who said this morning that they should not really be linked with internal armed conflicts at all, is the question of responsibility for environmental damage caused by United Nations forces or personnel associated with United Nations forces in operations mandated by the Security Council. Who is responsible if UNPROFOR or NATO wreaks havoc on the environment in Bosnia?

Now in principle, with UNPROFOR at least, it ought to be the United Nations. The principle seems to have been established in the past, that the United Nations would be the normal recipient of a claim for damage done by United Nations forces. On the other hand, with a NATO operation, not under the command and control of the United Nations, it is much more difficult to say that the responsibility of the individual member States of NATO is somehow excluded. And to make matters worse, Mr. Chairman, you have, I think, got a blurring of the dividing line between the two. Increasingly, States that contribute a contingent to a U.N. force may put it notionally under the command and control of the United Nations, but there is a hook to pull it back when the moment arises. There I think you have an area where the law of State responsibility is underdeveloped and there is enormous scope for holding the individual State responsible for the activities of its armed forces.

So in conclusion, Mr. Chairman, how effective is all this? How much difference does it actually make? Not very much. The U.N. Compensation Commission has the opportunity to set a very valuable precedent for State responsibility for environmental damage. But it already has $175 billion worth of claims filed before it, none of which relate to environmental damage, with the exception of a handfull of cases for personal injury where the complaint is, "I suffered ill health as a result of the pollution of the environment in and around Kuwait". If Iraq resumes oil production at the pre-war rate and is able to get the pre-war price for its oil, the Commission could probably count on having 6-7 billion U.S. dollars a year in revenue on the assumption that it receives 30 percent of the revenue from Iraqi oil sales. At that rate, assuming roughly 50 percent success in the claims filed, and assuming that the environmental claims were as extensive as people say they will be, it will take Iraq until the middle of the next century to pay off the entire amount awarded against it. That exceeds even Saddam's most optimistic life expectations.

What about the deterrent value? I was struck by something Bill Arkin said yesterday; that Iraqi officials he spoke to said, "Well, when we did this damage in

Kuwait nothing happened to us." Well something did happen. The U.N. Compensation Commission was set up with the authority to hand out billions of dollars of Iraq's money. But that clearly has had no impact within Iraq at all. The deterrent effect simply has not filtered through, at least in terms of the thinking of Iraqi officials.

So what I suggest, Mr. Chairman, is that State responsibility has a role to play here, but it would be mistaken for us to place too much reliance upon it. It is something which exists in the background as a secondary means of enforcement. A far greater hope for the future is to inculcate in servicemen and in the military planners a sense of environmental consciousness. We want to ensure that a future Admiral Farragut tells his officers "Full ahead, damn the torpedoes, but mind the tuna." Thank you sir.

Mr. Buchwald: Thank you Professor Greenwood. It is now time to hear from our commentator, Dr. Glen Plant. Glen?

Dr. Glen Plant, London School of Economics and Political Science: I don't think I can improve on Professor Meron's thanks and comments to the organizers for this very good conference. I neither deny nor confirm that I was in the vicinity of Ottawa in July 1991. For reasons that I cannot fathom now, however, I did, in this little book, list everyone who was. So, I think we can put Ottawa to bed by referring you to footnotes 274 and 275. Leslie Green was good enough to put one nail in its coffin; I think I will put the final nail in. The so-called "Chairman's Conclusions" were actually draft conclusions of which he has never authorized the release. So I think it is far more important, if we are to get into anything in the past, to talk about "Experts Meetings" organized by the ICRC in Geneva where I think valuable work was done, in particular on military manuals. What I do not want to look back to is the so called "June 1991 Greenpeace Conference on Proposals for a Fifth Geneva Convention." I deny that there was ever such a conference. What took place in June 1991 was a jointly organized London School of Economics/Greenpeace conference and I, for my part, never proposed a Fifth Geneva Convention. I think the problem may have come in the fact that the Greenpeace press machine forgot to mention that it was a joint venture, jointly financed. But that is in the past.

Turning to the subject, it is significant that the title of this panel starts with the words "State Responsibility and Civil Reparation" because, as both speakers have aptly pointed out, resort to State claims based on responsibility under public international law is rare in respect to environmental harm occurring even in peacetime, let alone as a result of military operations including those taking place in times of armed conflict. It follows that resort to civil liability and domestic courts is of potentially greater significance. I will mention that to some extent. In

this context, I will be quick to point out that I do not regard the *Trail Smelter Case* to be a true environmental case either. And thus to this extent, I agree with the quotation cited by Professor Green in his paper that *Trail Smelter* was more of a model then a precedent for State responsibility in this area. *Trail Smelter* concerned pollution damage, of course, but this resulted in claims concerning harm to property, not harm to the environment *per se*.

While I am not a "tree-hugger," I do want to talk about the environment, and I think perhaps we have not talked about the environment as much as we ought. Since the essence of State responsibility for acts of transboundary pollution lies in the occurrence of harm, not the mere occurrence of a wrongful act—unlike in other areas of State responsibility where harm is not such a prerequisite—this assumes potential significance where damage occurs to elements of the environment *per se* which cannot be characterized as property damage or harm to human health. Thus, in the State responsibility context, Professor Greenwood's point, that much environmental damage in the Gulf War, for example, was already covered by Hague law provisions, has its limits.

The main legal significance of *Trail Smelter* is implicit in what Professor Green said, and he was quite right to point out its weak legal origins, which, if anything, were based on general principles of international law rather than customary law. That significance was in its recognition of the emergence in embryonic form of this new area of State responsibility. Professor Green mentions in his paper the Stockholm Declaration on the Human Environment of 1972 and cites it in part. I think it is important to point to one provision of that Declaration, that is Principle 21, which is an expression of the *sic utere tuo* principle in its application to the environment. What is significant is that Principle 21 extends beyond the *Trail Smelter* context to include the global commons as well. It is not simply inter-State transboundary situations that it is dealing with.

It follows that I accept Professor Green's argument that the environment has been an object of protection in armed conflict since ancient times, and that there are some parallels between Biblical and modern texts. But this is, essentially, only in so far as the "environment" coincides with owned property or human health; only if you take an anthopocentric view of the environment—*i.e.*, in terms of what is necessary for man's survival. I think there is an argument for saying there are elements of the environment that might deserve protection in their own right, regardless of the affect they have on man.

My concern is simply that fundamental environmental values, even if looked at in this anthopocentric sense, are preserved. And do not make the mistake that the matters that I raised yesterday, my Mexico example, are matters that relate only to upper echelons of command. I deliberately chose Mexico as an example where clearly any military operations will have environmental impacts. But I also chose the Monarch Butterfly, which many of you may not have heard of,

deliberately because it is a highly migratory species that travels between Mexico, the United States and Canada. That example illustrates that even activity at a training level, or a military operation at a relatively low level, such as a brigade, could damage an area along the flight path of those butterflies that could effectively wipe out the species. Well, you may say "so what." Let me remind you that there are issues like bio-diversity, the loss of which we may come to regret in the future. I am not saying to you that we must sacrifice human lives to save the Monarch Butterfly. But what I am saying, is that it is an act of moral consideration, something that must be taken into account in policy formation and in the formulation of law.

I accept that the ancient texts and the modern texts do differ in another fundamental respect. The Stockholm Declaration, and a number of environmental treaties reflecting Principle 21, as well as a good deal of State practice, are concerned, to an increasing degree, with protecting the environment *per se*. They are also—and this is important—increasingly concerned with doing so by prior preventive action and mechanisms and not by mere posterior consequence-sorting. And here I will expand on what Professor Greenwood said about the deterrent effect of State responsibility. I think it is more than that. Professor Green, in his paper, emphasizes the role of supervisory authority and negotiating international mechanisms in this field. And it is in this context that methods such as environmental impact assessments and other manifestations of emerging or developed customs or principles of cooperation and precaution—indeed, State responsibility principles themselves—should be viewed. I agree it is not always easy to see how such mechanisms can be applied in relation to military operations. Of course, environmental damage will occur in wartime. Of course, the military cannot suspend fighting while the Army Board of Environmental Impact Assessors conducts a full-blown peacetime-type environmental impact assessment. But it does not follow that equivalent principles, which are ultimately related to State responsibility, and indeed, are more than simple mechanisms, cannot be applied in a suitable, limited manner during military operations so as to protect the environment *per se*.

Indeed, the law of war has expressly come to concern itself with the environment *per se*, in so far as we accept that Articles 35 (Paragraph 3) and 55 of Additional Protocol I represent emerging norms. I realize that is a controversial statement. Leslie, they do define the natural environment in one sense. That is, in the sense that at least the ICRC Commentary at page 662 states that it was intended to comprehend the natural environment not only as objects indispensable to the survival of the human population, but also forests and other vegetation mentioned in Protocol III to the 1988 "Inhumane Weapons" Convention as well as flora and fauna and other biological and climatic elements. Now I realize that the

Commentary is not an official interpretation, but it is at least a persuasive guidance, in my mind.

The questions, therefore, are whether the existing protection is adequate and what role does State responsibility play in this arena? I will try to refer in answering these questions to several more of the speakers' points. Before I do so, however, three more preliminary points ought to be made. I think any talk of liability for transboundary injuries as a consequence of acts not prohibited by international law, merely serves to confuse. And I believe this is mentioned in both speakers' papers. The International Law Commission is misguided in applying this concept to environmental harm. Why? Because the lawfulness or not of the act is irrelevant. State responsibility arises from the harm caused by the pollution across State boundaries, not from the suggested nature of the act itself. Professor Greenwood mentions in his paper that it would be controversial for the ICRC to seek to apply this notion to military operations. Well, he will be glad to hear that they decided to exclude military operations from their considerations. I think that is very sensible.

Secondly, I would like to applaud Professor Greenwood's remark about not placing too much emphasis on putative, personal and—God help us—State criminal liability in parallel with State responsibility. I think they are separate issues; looking at them together merely serves to confuse. Finally, I could not agree more with Leslie Green on *jus cogens*.

The point is that either State responsibility arises or it does not. It is simply a matter of examining the relevant State practice and applying the relevant law, including in respect of any *erga omnes* obligations there may be. Either State responsibility is a useful primary device to ensure environmental protection or it is merely an important residual method of last resort when other mechanisms of control or redress have failed. I think it is the latter. It is certainly the latter in the peacetime context. To illustrate this, I have various possibilities—Chernobyl is one. Two States have reserved the right to bring claims, but they have not done so. Secondly, the usual approach to regulating international environmental problems now-a-days is to prepare a framework convention to be followed up by protocols. The last protocols to be negotiated within these framework treaties are State liability protocols; every time.

I think there are other fundamental reasons for this residual role of State responsibility. First, certain environmental problems simply cannot be laid at the door of individual States. Enhanced global warming, depletion of the ozone layer, and, to a large extent, loss of biological diversity, result from the combined actions or inactions of all States and require cooperative global solutions. You simply cannot deal with it in terms of inter-State claims. That is true even where you have a single, notorious contributory act, such as the burning of the oil wells by Saddam Hussein in the Gulf War. It is very, very difficult to find out exactly what

contribution to global warming that act made. It is very difficult. I would note, however, that in terms of long-range transboundary air pollution, it is now possible, through technological advances, to trace pollutants back to their source. The 1979 Convention that Leslie mentioned is no longer a particularly pertinent example. Equally significant is the ineffectiveness of the traditional corollary to State responsibility in cases of breaches of multilateral treaties. It is important to note that an awful lot of international environment law occurs in multilateral treaties. And I am thinking of the exclusion of the party in breach from the benefits of the treaty. Now with the exception of four treaties that I can think of where there is actually cash up front for certain parties, mainly developing parties, I can not think of any environmental treaty where throwing the State out is going to do you any good. You are going to do more harm to the environment by suspending the rights of that State then by keeping it within the treaty's embrace.

One of the difficulties surrounding the concept of State responsibility in the field mentioned by the speakers was the uncertainty concerning the standard of liability to be applied. Whether it is in the nature of strict or absolute liability, or in terms of fault based liability, the treaties and the State practice on this are not clear. But what you can say is that in relation to certain ultra-hazardous activities, and Leslie gave us examples in relation to activities in outer space—the Cosmos 954 claim—to marine pollution and to nuclear threats, the standard has generally been agreed in the treaties to be strict liability, and it is significant that it is in these areas that States have been most willing to bring international claims. It is with respect to ultra-hazardous activities that States have also been most willing to set up civil liability, joint compensation cooperative mechanisms. I think we would all agree that military operations are ultra-hazardous, in the sense that while we might not criticize them, we do not want to be around when they are happening. People get hurt in armed conflict. Joking apart, I think the treatment of certain activities in peacetime as ultra-hazardous, in this context, is judged less in terms of their ultra-hazardousness for the environment than in terms of their ultra-hazardousness for human health and property interests. I am sure that Bill Arkin would approve. The same must be true in times of armed conflict, but I could see no good argument, given the nature of war, for not applying a standard of due diligence, rather than strict liability, to State responsibility for environmental damage in time of armed conflict. Indeed, due diligence has a better track record in most areas than strict liability. But any peacetime judgment as to what is required of a State in terms of due diligence cannot be automatically transferred to the armed conflict context. So we have to work out precisely which standard to apply. That will, of course, depend on which so-called peacetime norms continue to apply in wartime. All I can say on this, and I realize I am being pressed for time here, is that I am not a "*lex specialis* merchant" by any means, and the issue

has been raised as to whether we need a thorough examination of which treaties continue to apply.

Well here is the plug. I have a European Community research fellow at the Center for Environmental Law and Policy, who is at this moment examining the long list of international environmental treaties, I gather there are over 900 of them, with a view to determining their potential applicability or not in times of armed conflict, including international armed conflict and other emergency situations. I was going to give you the benefit of our preliminary findings in marine environmental matters. I will not do that, but it is surprising how strong a case can be made—leaving aside the whole question of the Law of the Sea Convention—for a number of International Maritime Organization Convention provisions continuing to apply in time of war much the same way as they do in peacetime. I can talk about that to people privately afterwards.

In truth, States prefer to leave the whole issue of compensation for environmental harm in peacetime to the vagaries of national law. They just do not want to know. The most they will do, usually, is encourage the adoption of domestic rules on equal access and nondiscrimination vis-a-vis foreign claimants coming to their courts. In the case of ultra-hazardous risk, they will go further and establish international joint compensation regimes, usually involving strict liability. In so far as such insurance schemes are based on treaties, and I realize not all of them are, I can see no good reason why they should not continue to operate in time of armed conflict, whatever sort of armed conflict there is. The only difficulty I see is equally a difficulty in peacetime. These treaties leave a lot of unsettled questions, such as the quantification and calculation of pollution damage, to the vagaries of national law. So while we have some hope in the form of U.S. decisions in the *Zoe Colocation Case*, the *State of Ohio Case*, etc., where some meaning is given to the concept of damage to the environment *per se*, as opposed to just token damages being given. And, indeed, we have some downright extravagant efforts in some Italian courts at the moment. In general, however, only token damages are allowable. It follows that even if, as I argue, these schemes continue to apply in time of armed conflict, you can not be confident of proper compensation for environmental damage, especially if you do not have a government that is willing to take up a claim *pro bono publico*. And this comes back to the question of *actio popularis*, whether in the international sphere or in terms of a domestic court. I do have one or two points on that in my paper, but I will rest with that. Thank you.

Mr. Buchwald: Thank you Dr. Plant.

We have time for several questions from the floor. Professor Meron, you have the first opportunity.

Professor Theodore Meron, New York University: I am grateful to the speakers for the presentations. I have a comment or two. If I may start with Professor Greenwood. I understood you to say that except for cases of damage to neutral States there would be no pertinence to traditional rules of State responsibility?

Professor Greenwood: The point I was making was that State responsibility in this context was limited to the very special case of an internal, non-international armed conflict, and I was suggesting that unless the activity taking place in the State where the conflict was occurring had some effect on the environment outside that State, than it was unlikely to trigger principles of State responsibility. I think we are still some way away from State A being able to bring a claim based on what B is doing to B's environment without showing that is having some effect on State A.

Professor Meron: Chris, thank you for this clarification. I think that basically I understood you correctly, even though I did not spell it out. And I am wondering whether this is not a somewhat formalistic, perhaps even a tiny bit artificial way of viewing the situation. With regard to internal conflicts involving damage to the environment, I think rules of State responsibility could be implicated either directly or by analogy in a number of situations. First, we may have inter-State aliens, who would be victims of environmental damage and could have claims based on State responsibility against the government in power. That is the first situation. Secondly, imagine that individual citizens in the country would have claims, which would be generated as a result of environmental damage and those claims eventually would have to be dealt with either by the government or whoever succeeds to the government. Thirdly, imagine that the conflict results in partition of the country. One could imagine that agreements between the two constituent parts of the country would in fact state various principles of State responsibility as very relevant to the resolution of the conflicts between them. Finally, the rebel authority, should it be recognized eventually as a government of the country, would even under traditional principles of international law be bound by rules of international law. Now I am aware of the fact that you might have difficulty in identifying the proper party plaintiffs, but one could come up with some situations in which you could find such plaintiffs. And, finally, Professor Oxman, a great authority on the law of the sea, added the following to my list of queries: imagine maritime environmental damage in areas beyond national jurisdiction. For instance, oil leaks damaging nets and fishing by third country citizens. This too, might implicate claims to which rules of State responsibility would be directly or by analogy relevant. Thank you.

Professor Greenwood: Well, yes, I think this shows the dangers in trying to summarize something as quickly as I was doing at that stage. To take the cases that

you have raised, let me make it quite clear, first of all, that I am not suggesting for a moment that the substantive rules of law on damage to the environment in non-international armed conflict are limited to cases where there is a transboundary affect. All I was suggesting is that it is unlikely that principles of State responsibility for that environmental damage would come into play without some transboundary affect. Now, of course, Professor Meron is quite right in pointing out that there are immediately two exceptions to that. There is the case in which a national of the State where the conflict is taking place brings a complaint based on violation of his/her human rights. Now that, of course, does involve a form of State responsibility I quite accept, but I was not really thinking of that. I was thinking purely in terms of State-to-State claims. Diplomatic protection, on the other hand, such as a British national caught up in fighting in Rarotonga who suffers harm as a result of environmental damage taking place in the conflict—it is, in theory, a possibility that State responsibility will provide a remedy, but I have to say I think it is a fairly far-fetched notion at the moment. I am not aware that there has been any case of that kind, and I think it is unlikely that there will be in the future. A claim between the two successor States? Yes, that would be a possibility. I confess I had not been thinking about that at the time. I do not understand, I'm afraid, the point about the rebel authority being recognized as the government, and thus, bound by the rules of international law. Of course it would, but who would be the claimant in respect to the damage that is done? Surely not the outgoing government. The question is not which regime is the government of the State, but what it is that entails the responsibility of that State, irrespective of who is its government. And, finally, the point about areas beyond national jurisdiction. That was just a careless slip of the tongue on my part. I tried to make the point that you would have to affect the environmental rights or interests of some other State. That could easily be the case in relation to environmental damage to areas beyond the jurisdiction of the State. I was not thinking purely in terms of polluting the territory of another State itself.

Dr. Plant: I just wanted to add a couple of sentences supplementary to Professor Meron's argument, and that is one can increasingly think of State-to-State responsibility examples here, because there is an emerging concept of international environmental laws—the common concern of mankind—that is particularly well embodied in the Biological Diversity Treaty. That is a treaty that is pretty lousy on transboundary consequences. It concerns mainly what a State does within its own territory. And this is a subject matter of a treaty and, therefore, of international concerns. So, if this trend continues, one can see the possibility of State-to-State

things. Of course, there is going to be a great deal of political will to make that sort of treaty work in practice.

Professor Ivan Shearer, University of Sidney: I want to thank Chris Greenwood for his clarification of a number of important issues here. I just want to ask him a question about the as yet very underdeveloped law of State responsibility as it affects the United Nations in operations mandated by it, especially by the Security Council and those participating forces who are acting under the umbrella—under the authorization of the United Nations, not necessarily under U.N. command. I think he is absolutely right when he says that Iraq would not be liable for illegal acts committed by the Coalition forces. Even though it is a somewhat theoretical proposition, I would think that if there were any such illegal acts which were compensable, that they would be set off against Iraq's bill. But I come to the more important point which is really a question. If contributing forces are going themselves to be liable to pay compensation for breaches of the law of armed conflict, would any State be willing to contribute such forces? That is one part of the question. I am reminded of the analogy of the good Samaritan. In the tort law of the United States, and in other common law countries like my own, you go to the assistance of a victim at your own peril because if you render clumsy, negligent assistance, you can be held liable for that negligence. Now it is much the same when you contribute forces to Somalia or Rwanda or wherever. Do it the wrong way, and you get lumbered with a bill. So I am just wondering whether or not that is a fruitful line of inquiry for the future, and whether or not it is linked up with the *Lockerbie Case*, or the implications of the present round of a *Lockerbie Case*. Could conceivably the Security Council pass a resolution, as it were, giving an indemnity in advance?

Professor Greenwood: If you will excuse me, I won't deal with the last point about the *Lockerbie Case* because I would have to spend the first 20 minutes of my answer giving various disclaimers. So I think I will pass on that one if I may and just look at the main question which Professor Shearer asked about the responsibility of the State for acts of its forces while operating under U.N. command or in a role ancillary to a U.N. operation. I think it is fairly clear that forces of that kind are capable, of course, of causing very extensive environmental damage. They are also, sadly, capable of doing it in an illegal fashion. We are all too familiar with the Canadian trials from Somalia, some of the history of claims against U.N. forces for their activities in the Congo, and so on, to think that just because somebody wears a blue beret it makes him an angel over night. Now supposing that you have damage of that kind. There would seem to be three possibilities there. One is that there is no responsibility vested in anyone—the U.N., the State, anyone at all—leaving the country and the individuals who suffered loss as a result completely without any

recourse. That appears to be grossly unfair. The second possibility is that you vest responsibility in the United Nations, which I think is fair enough where the U.N. has command and control of the operation. But where it does not have command and control, to say that the United Nations budget must pay for the illegal acts of, let us say, American personnel serving under American command, merely because they were acting with a U.N. authorization, that I think would be a principle very difficult to accept and would have adverse consequences of a very similar kind to the one that you suggested earlier. It would put the United Nations off making use of this kind of operation at all. The third possibility is that you make the responsible State pay. And I think the principle—while I can see that it is potentially something which would put States off of United Nations operations of this kind—could be put in these terms: If you insist on retaining control of the forces yourself, you must take the consequences that go with that and there may occasionally be a price to pay.

Professor Green: Chris Greenwood has touched on an issue that affects Canada very deeply; the issue of what happened in Somalia. Regardless of the criminal prosecutions and the court of inquiry that is now seeking into those things, I will point out that the immediate reaction of the Canadian Government was to pay the compensation that is normally considered reasonable by Somalis in Somalia for the death of a 17 year-old boy. There was no question that we were not liable because it was under the authority or the umbrella of the U.N. The immediate thing was, regardless of any personal criminality or anything else, we as Canadians carry the obligation to compensate and we did just that. The amount may not appear adequate from the point of view of a Western interpretation, but it was exactly what was expected in the Somalia situation by Somalis.

Professor Adam Roberts, Oxford University: The two very thoughtful papers raise questions which I would really invite the writers to answer in slightly less legal terms than they have incorporated in their papers. My question is first, on the matter of State responsibility versus individual criminal responsibility—and I realize that they should not be seen as necessarily antithetical—is there not an element of opportunism in the way States go one way or the another according to needs and possibilities of the moment? Thus, in the case of Iraq, although there was some initial discussion of individual criminal responsibility, in the end—because of the possible control over Iraqi resources and resumption of oil sales and so on—it was decided to go down the State responsibility route. Of course, in respect to the former-Yugoslavia, it may be that the attempt at establishing individual criminal responsibility is due to the fact that many of the individuals involved do not represent recognized States, and it would be very difficult to establish State responsibility of, let us say, the Republic of Serb-Krajina or the

Bosnia/Serb Republic. That brings me to the second question. Is there not an extreme danger in the position outlined—which is intellectually tidy, legally neat—of putting so much emphasis on *jus ad bellum* and deciding that because an individual State initiated a conflict, a very large range of the consequences, at the hands of whomever, can be laid at the door of that State? First of all it is very rare that one has such a clear case of aggression, but secondly, there is a very great risk of a deep sense of injustice within that State which has to go on paying a high level of compensation over a period of years. This affects individuals who feel in no way directly responsible for that initial aggressive decision. I need only mention here the terrible consequences in post-World War I Germany of precisely such a feeling.

Professor Green: In response to the question of criminal liability and State liability—you referred to Germany after the First World War—I refer to the Treaty of Versailles where you had both an attempt at establishing personal criminal liability and a reparation system against the State itself. It is a political decision in every case, either for "the victors" or those who sit down to work out what the future regime is going to be. In so far as the situation in the former-Yugoslavia is concerned, I think we have to recognize that the pubic opinion created by media reporting of the type of criminality, the type of behavior being enacted in that territory was such that you had almost a public demand for criminal liability far more than you did in the Iraq situation, and partly because the Iraq situation was over so quickly. Despite the exercise by CNN, which in many ways I found deplorable, one still had a very quick operation in Iraq. But in Bosnia, it is something that has been going on for three years. The press reported masses and masses of atrocities. As a result of that, the public has demanded that a criminal action must take place. One of the horrors of it is the sort of thing that we hear from Rwanda, that virtually everybody on the other side was a war criminal, which reminds me of the Japanese effort that everybody who bombed Tokyo was automatically—how dare he bomb Tokyo—a war criminal. So that we have this other aspect that we have not considered. How far a State which has got complaints alleges that everybody—particularly in a non-international armed conflict—everybody on the other side was automatically a war criminal. But the point you raise, I think, relates to the change in public temper. Iraq was a long way; you do have to recognize that the Balkans are part of Europe, and there is a different reaction, whether we like it or not. Some of the Muslim States, some of the Arab complaints are justified—that we are more concerned about the Balkans because it is in Europe, because they are "white," then we worry about Somalia, Rwanda, Liberia, etc., etc.

Professor Greenwood: Very quickly I want to give you a practical, not a lawyer's, response. You can not have a prosecution unless you have got a defendant in

custody to charge. And there is no point in bringing a civil action unless the defendant has got assets. And that I think is the bottom line of why you get a different approach taken in Bosnia from the one that was taken in Iraq.

Professor Michael Bothe, Johann Wolfgang Goethe University, Frankfurt, Germany: Believe it or not, I agree with a lot of what Leslie said. Of course, liability is a different concept where we speak of the protection of the environment. We have aggregation problems on both sides. We may have a particular damage, which cannot be traced to a particular source, and we may have a particular source but we do not know where the damage is. However, it is true that the law of tort liability, or international responsibility, has a role to play as a deterrent and as a means of efficient or just allocation of costs. But this is very complicated. We know that from national law, where legislation has tried to solve some of these problems, and we see it in international law. And there is no wonder that this, which is already complicated as a legal instrument of environmental protection policy in times of peace, becomes more complicated in times of war. All the more reason to work on that and to try to get the most out of the law that we have got. And this is why I think the role which the Compensation Commission may play as a precedent will be important. Whether this is going to be successful remains, of course, to be seen. There are lots of legal traps in the whole thing. The idea that because a State has funds it will be liable for claims compensation until the end of the next century, and whether this is going to work, is highly doubtful.

PART EIGHT

PANEL VI: CRIMINAL RESPONSIBILITIES FOR ENVIRONMENTAL DAMAGE

Chapter XXVII

Criminal Responsibility for Environmental Damage in Times of Armed Conflict

Professor Michael Bothe*

It has often been said in this Conference that the enforcement of existing law is essential; and criminal law is referred to as an essential means of enforcement. But a report dealing with enforcement through criminal law must question this basic assumption. There are reasons to believe that the actual role of criminal law in the enforcement of international humanitarian law is rather limited,[1] and not as important as many seem to think.

One of the purposes of criminal law is to serve as a deterrent against prohibited acts.[2] But this deterrent effect presupposes that there must be a reasonable probability for the perpetrator of a crime that he or she is indeed prosecuted and punished.[3] But taking into account the fact that since the aftermath of the Second World War, many war crimes have been committed but very few have been prosecuted,[4] this requirement is hardly met. There are a number of factors inhibiting such prosecution and punishment. During the conflict, the party to which the perpetrator belongs is quite often unwilling to offend the military by prosecuting soldiers fighting for their country. The other party, if it happens to apprehend a perpetrator, quite often fears reprisals against its own prisoners. Third parties, which are also under an obligation to prosecute and punish grave breaches against the Geneva Conventions, often lack the political will to do so. It must be mentioned, however, that the only defendant physically present before the International Tribunal for former-Yugoslavia was arrested in Germany in order to be prosecuted by German authorities for grave breaches of the Geneva Convention.[5] But looking at State practice as a whole, this is rather an exception. After the conflict, there has often been a tendency to discontinue any trials of crimes committed during past conflicts. This has until recently even been true in many countries as far as war crimes committed during the Second World War are concerned.[6]

There is an additional factor reducing the deterrent effect of criminal law for crimes committed in an armed conflict. The typical war criminal is not like the clandestine thief who knows very well that he acts outside the value system of his or her society. As in many cases of peacetime torture, the war criminal thinks of himself as being part of this value system, as doing his duty for his country.[7] This

perception may or may not be true in a particular country, but it is nevertheless a reality which reduces the deterrent effect of criminal law provisions.

Whether the recent establishment of two international tribunals for the prosecution and punishment of violations of international humanitarian law is the beginning of a new era where the punishment of those violations becomes a reality likely to serve as a deterrent, remains to be seen.[8] The one defendant so far physically present before such a tribunal is not sufficient for this purpose.

There is, however, a very basic phenomenon, the significance of which cannot be denied: criminal law reflects and shapes basic value decisions of a given society.[9] This fact accounts for the importance of the grave breach provisions of the Geneva Conventions. It is also true for national criminal law. For this reason, changes in value perception of societies are often reflected in changes of criminal law. Changes in the criminalization of sexual practices and of abortion are well-known examples.[10] So is the protection of the environment. The tremendous development of environmental legislation which took place in many States, in particular the Western industrialized States in the seventies, was accompanied by the adoption of criminal law provisions designed to sanction offenses against the environment.[11] But this cultural or educational effect of criminal law presupposes clarity of the law. Reinterpretation is not enough for this purpose.

We have now to ask whether and to what extent criminal law, national or international, adequately protects environmental concerns of our global community also in times of armed conflict. In the two decades since the resumption of international negotiations to confirm and develop the law applicable in times of armed conflict in the early seventies, there has been a growing trend to reflect the international concern for the preservation of the world's environment also in norms of international humanitarian law.[12] Whether and to what extent this trend should lead to a further development is one of the questions discussed at this Conference. How far has criminal law followed these trends, or does it lag behind? An answer to this question, of course, presupposes an analysis of existing law relating to the conduct of armed conflict.

Here, we have to distinguish two different kinds of norms. First, there are norms which provide for an obligation of States to prosecute and punish certain violations of the laws of war. These are not criminal law provisions *stricto sensu* as they require some kind of national implementation legislation in order to become effective. The provisions of the Geneva Conventions on grave breaches are of that character. They require States to apply their national criminal law to the effect that these breaches are indeed prosecuted and punished, it being left to the national law of each State party whether or to what extent this can be done under existing law or whether specific implementation legislation is necessary.[13] There are a great variety of legal techniques adopted by States in order to fulfill this obligation, including an action based on the assumption (which may or may not be correct)

that existing national criminal law is sufficient to allow the punishment of all kinds of grave breaches.[14]

The second type of norm is an international criminal law provision *stricto sensu, i.e.*, an international norm providing directly for the punishment of the guilty individual without the necessity of any additional national act.[15] The international crime of aggression is the best known example of this kind of a norm. The grave breach provisions of the Geneva Conventions may also acquire a similar quality where they are referred to in an additional international document giving a specific judicial body the power to apply those provisions as a basis for prosecution and punishment of offenders. This is the case for the statutes of the tribunals established for the punishment of violations of international humanitarian law in former-Yugoslavia and Rwanda.[16] It will also be the case if an international criminal court is established on the basis of a treaty along the lines proposed by the International Law Commission.[17]

Let us, therefore, first analyse the grave breaches provisions of the Geneva Conventions and Protocol I Additional thereto. The definition of grave breaches contained in the four 1949 Geneva Conventions[18] (Articles 50, 51, 130, 147 respectively) and Additional Protocol I[19] (Article 85(3) and (4)) is characterized by the fact that it mainly protects persons as victims. The new provisions of Additional Protocol I which expressly protect the environment in times of armed conflict are not in the list of grave breaches of that Protocol. The only provision protecting mainly objects is Article 85(4)(b) concerning historic monuments. There is, however, one element in the definition of the Geneva Conventions which does not refer to persons, but to objects and which is certainly relevant for the protection of the environment: "extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly". The Statute of the International Tribunal for the former-Yugoslavia expressly paraphrases this element of the definition.[20]

The question has thus to be asked whether and to what extent this kind of grave breach applies to the environment. The destruction of oil-wells in Kuwait may serve as an example for the problem. There is no doubt that this destruction constituted an "extensive destruction not justified by military necessity and carried out unlawfully and wantonly" as there was apparently no military purpose behind it.[21] But the environmental damage lies elsewhere, not in the destruction of the oil-wells. The environmental effect consists in the air pollution and the particles which go down on the desert or on mountains far away. To the extent that the destruction of oil installations resulted in pollution of sea areas and beaches, the same holds true: the environmental damage is not the same as the actual destruction of property. One can then argue that the elements of the environment which are damaged as a consequence of the destruction are also property within the meaning of that provision. This may be so if land owned by

somebody is damaged. But where the marine environment or certain species living on land are the victim, it is at least not a matter of course to conclude that this damage to the environment also constitutes a destruction of property. It is thus more than doubtful whether the existing grave breaches provisions of the Geneva Conventions adequately cover illegal causation of environmental damage in times of armed conflict.

Assuming that the environmental damage caused by the destruction of the oil wells constituted, within the meaning of Article 55 of Additional Protocol I, "widespread, long-term and severe damage" and also was likely "to prejudice the health or survival of the population" (for instance because of their effect on desalination plants), would this trigger a duty of States to prosecute and punish this violation of the Protocol? The question is, in other words, whether there is a duty to punish violations below the level of grave breaches. This can only be said if one assumes that the general duty to ensure compliance with the applicable law by all means necessary and appropriate necessarily includes criminal prosecution. This is far from being certain, to say the least.

But even if there is no duty to punish offenses against the environment, is there a right of States to apply their national law protecting the environment and to prosecute and punish the offender on that basis? This, first, raises a sovereign immunity problem, when the offender belongs to the other party. It is submitted, however, that a public official cannot claim sovereign immunity for official acts which are in violation of the laws of war, although the well recognized exception to the rule of immunity for official acts only applies to war crimes.[22] The real problem, however, is of a substantive character. National criminal law provisions relating to the environment are just not made for this kind of an offense. Generally, they are in one way or the other related to national administrative law.[23] Those who are polluting the environment in contravention of national rules concerning permissible pollution are punished. One could, of course, argue that a pollution caused in violation of international law should also be considered a violation of internal law and therefore punishable under the relevant national rules. But, to say the least, defense attorneys would have a good case if this were pleaded by the prosecution. A number of international conventions relating to the protection of the environment in times of peace, however, require the States parties to take specific national measures to implement those treaties, including criminal prosecution of offenders.[24] They are not relevant in this context, but it is in this direction that the law relating to the protection of the environment in times of armed conflict should develop.

The recent development of international criminal jurisdiction also raises the problem, already mentioned, whether causing a serious damage to the environment constitutes a genuine international crime as defined in the report of the International Law Commission concerning the creation of a permanent

international criminal tribunal: "A norm of international law accepted and recognized by the international community of States as a whole as being of such a fundamental character that its violation gives rise to the criminal responsibility of individuals." Article 19(3)(d) of the I.L.C. Draft Articles on International Responsibility[25] designates the serious breach of an international obligation of essential importance for the preservation of the environment, such as those prohibiting massive pollution of the atmosphere or of the sea, as being an "international crime." Whether this provision really envisages the creation of a genuine criminal law provision is, however, far from being certain.[26] This is different for Article 26 of the Draft Code of Crimes against the Peace and Security of Mankind.[27] It would go too far, however, to consider either draft as already constituting customary law.

In conclusion, one can say that national and international criminal law can and must be used in order to sanction violations of the laws of war relating to the protection of the environment. But the law in this respect is not as clear and unequivocal as it could and should be and it does not necessarily cover all violations which should be covered. Therefore, this law needs further development.

Notes

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1. Generally on the question *see* Bothe, *Prevention and Repression of Breaches of International Humanitarian Law*, 1986 Y.B. Hum. Rts. 115.

2. KARDISH, SCHULHOFER & PAULSEN, CRIMINAL LAW AND ITS PROCESS (1983) at 195; LEFAVE & SCOTT, HANDBOOK ON CRIMINAL LAW (1972) at 23; NAUCKE, STRAFRECHT - EINE EINFÜHRUNG (1994) at 33.

3. Jäger, *Makroverbrechen als Gegenstand des Völkerstrafrechts*, *in* STRAFGERICHTE GEGEN MENSCHHEITSVERBRECHEN (Hankel & Stuby eds. 1995) at 339.

4. *See* Andries, *Report to the Committee on Military Criminology, International Society for Military Criminal Law and the Law of War*, 29 Revue de Droit Militaire et de Droit de la Guerre 422 (1990).

5. Decision of the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the former-Yugoslavia, Case No. IT-94-1-T (The Hague: 10 Aug. 1995); Decision on the Defence Motion for Interlocutory Appeal, Appeal Chamber, International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the former-Yugoslavia, Case No. IT-94-1-AR72 (The Hague: 2 Oct. 1995).

6. Kirby, *War Crimes Prosecution - an Australian Update*, 19 C.L. Bull. 781 (1993); Green, *Canadian Law, War Crimes and Crimes Against Humanity*, 59 Brit. Y.B. Int'l L. 217 (1988).

7. Andries, *supra* n. 4 at 467; *see also* Jäger, *supra* n. 3 at 327.

8. Statute of the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the former-Yugoslavia since 1991, 32 I.L.M. 1192 (1993); Statute for the Criminal Tribunal for the Prosecution of Persons Responsible for Genocide and Other Serious Violations of International Humanitarian Law Committed in the Territory of Rwanda and Rwandan Citizens Responsible for Genocide and Other Such Violations Committed in the Territory of Neighboring States Between 1 January 1994 and 31 December 1994, 33 I.L.M. 1602 (1994); *see also* Draft of the International Law Commission (I.L.C.) for an International Criminal Tribunal (with commentary) [hereinafter I.L.C. Draft], 33 I.L.M. 258 (1994); Carter, *Proof Beyond a Reasonable Doubt? Collecting Evidence for the International Tribunal for the Former-Yugoslavia*, 31 Can. Y.B.Int'l L. 235 (1993); Greenwood, *The International Tribunal for Former-Yugoslavia*, 69 Int'l Affairs 641 (1993); Castillo, *La Compétence du Tribunal Pénal Pour la Yougoslavie*, 98 Revue Générale de Droit International Public 61 (1994); Oellers - Frahm, *Das Statut des Internationalen Strafgerichtshof zur Verfolgung von Kriegsverbrechen im ehemaligen Yugoslawien*, 54 Zeitschrift für Ausländisches Öffentliches Recht und Völkerrecht 416 (1994); *see also* the extensive

literature cited by James Crawford, in *The ILC Adopts a Statute for an International Criminal Court*, 89 A.J.I.L. 404 (1995), at nn. 11 & 17; for text and commentaries on the I.L.C.-Draft Statute for an International Criminal Court, *see* 1994 I.L.C., Report on the Work of its Forty-sixth Session, U.N. G.A.O.R., 49th Session, Supp. No. 10, at 43-161; *see also* Crawford, *supra*, at 404-416.

9. PERKINS & BOYCE, CRIMINAL LAW (1982) at 6; RUDOLPHI, SYSTEMATISCHER KOMMENTAR ZUM STRAFGESETZBUCH, (1995) Vol. 1, No. 2; NAUCKE, *supra* n. 2 at 37; for the particular problems of international criminal law *see* Jäger, *supra* n. 3 at 341-342 & 346-347.

10. KAUP, DER SCHWANGERSCHAFTSABBRUCH AUS VERFASSUNGSRECHTLICHER SICHT -EINE RECHTSVERGLEICHENDE UNTERSUCHUNG ANHAND DES DEUTSCHEN UND DES AMERIKANISCHEN RECHTS (1991) at 7-14; PIAZOLO, DAS RECHT AUF ABTREIBUNG ALS TEILSASPEKT DES RIGHT OF PRIVACY (1992) at 85.

11. This was, for example, the case in Germany, *see* TRIFFTERER, UMWELTSTRAFTRECHT (1980) at 15-19.

12. Protection of the Environment in Time of Armed Conflict, U.N. Doc. A/47/328 of 31 July 1992 (this document includes a Report of the ICRC to the General Assembly of the U.N. of 30 June 1992); Report of the U.N. Secretary-General on "'Protection of the Environment in Time of Armed Conflict," U.N. Document A/48/269 of 29 July 1993; United Nations, General Assembly, "Protection of the Environment in Times of Armed Conflict," G.A. Res. 47/37 (Nov. 25, 1992); *see also* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A FIFTH GENEVA CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT, (Plant ed. 1992).

13. *See* Vinuesa, *Introductory Report on Criminal Sanctions for Violation of International Humanitarian Law, in* NATIONAL IMPLEMENTATION OF INTERNATIONAL HUMANITARIAN LAW (Bothe, Macalister-Smith & Kurzidem eds. 1990) at 82.

14. BOTHE, *supra* n. 1, at 118.

15. Ipsen in 38. no. 1,12 *Völkerrecht* 535, (Ipsen 3rd ed. 1990); *see also* Art. 20 of the I.L.C.-Draft for an International Criminal Court, *supra* n. 8, and the explanation given by Crawford, *supra* n. 8 at 410 on Draft Code of Crimes against the Peace and Security of Mankind.; for further developments on the Draft *see* Thiam, *Eleventh Report of the Special Rapporteur*, 1993 I.L.C.U.B. vol. 1, p. 5.

16. Art. 2 of the Statute for the International Tribunal for the former-Yugoslavia, *supra* n. 8; Art. 4 of the Statute for the Criminal Tribunal for Rwanda, *supra* n. 8, is titled: Violations of Art. 3 [c]ommon to the Geneva Conventions and of Additional Protocol I.

17. I.L.C. Draft, *supra* n. 8.

18. 1949 Geneva Conventions for the Protection of War Victims, 1949, 6 U.S.T. 3114-3695; T.I.A.S. 3362-3365; 75 U.N.T.S. 31-417.

19. Protocol Additional to the Geneva Conventions of 12 Aug. 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 1977, *reprinted in* 16 I.L.M. 1391 (1977).

20. *Supra* n. 8.

21. See Lijnzaad & Tanja, *Protection of the Enviroment in Times of Armed Conflict: The Iraq-Kuwait War*, 40 Netherlands Int'l L. Rev. 196 (1993); Morris, *Protection of the Enviroment in Wartime: the United Nations General Assembly Considers the Need for a New Convention*, 27 Int'l L. 775 (1993); General Assembly Resolution 47/37 (1992); more generally, *see* Baker, *Legal Protection for the Enviroment in Times of Armed Conflict*, 33 Va. J. Int'l L. 351 (1993).

22. Bothe, *Die strafrechtliche Immunität fremder Staatsorgane*, 31 Zeitschrift für Ausländisches Öffentliches Recht und Völkerrecht 246 (1971).

23. For the Penal Law in Germany, *see* Breuer, *Verwaltungsrechtlicher und Strafrechtlicher Umweltschutz -Vom ersten zum Zweiten Umweltkriminalitätsgesetz*, Juristischen-Zeitung 1083, 1089 (1994).

24. *See* BASSIOUNI & WISE, AUT DEDERE AUT JUDICARE, THE DUTY TO EXTRADITE OR PROSECUTE IN INTERNATIONAL LAW (1995) at 254.

25. *See* 1980 I.L.C. Y.B., vol. 2, at 30-34.

26. *See* as to that and on Article 19 in general, Mohr, *The ILC's Distinction Between "International Crimes" and "International Delicts" and its Implications, in* UNITED NATIONS CODIFICATION OF STATE RESPONSIBILITY (Spinedi & Simma eds. 1987) at 115 & 133; Hofmann, *Zur Unterscheidung Verbrechen und Delikt im Bereich der Staatenverantwortlichkeit*, 45 Zeitschrift für Ausländisches Öffentliches Recht und Völkerrecht 207 (1985)(with English summary); Triffterer & Völkerstrafrecht *in* STRAFGERICHTE GEGEN MENSCHHEITSVERBRECHEN (Hankel & Stuby eds. 1995) at 216.

27. Bothe, *supra* n. 1.

Chapter XXVIII

Individual Accountability for Environmental Damage in Times of Armed Conflict: International and National Penal Enforcement Possibilities

Dr. Gerard J. Tanja*

I. Introduction

The issue of regulating the protection of the environment *per se* in times of armed conflict and other military operations has, especially after the 1990-1991 Iraq-Kuwait War, attracted much scholarly and governmental attention, although the issue as such is a rather 'classic' topic under the laws of war.[1]

As I observed in an earlier contribution on this matter, the "... magnitude and seriousness of the environmental consequences ... have raised a variety of legal questions concerning the validity, effectiveness and interpretation of applicable principles and rules of international law".[2]

It seems to me that most of the scholarly attention and governmental discussions so far have concentrated on issues like, *inter alia*, the general legal aspects of the regime applicable to the protection of the environment in times of armed conflict,[3] questions whether this regime provides adequate protection for the environment as such,[4] and issues of neutrality law and the aspect of the continued application and validity of rules of peacetime international environmental law during armed conflicts.[5] Others have concentrated on the relation between the relevant provisions of the 1977 Additional Protocols and the appropriate provisions to be found in the earlier Geneva Conventions and the interpretative and legal conclusions which may be drawn from such a comparison.[6]

Relatively little interest has been shown in individual criminal responsibility for wanton destruction and damage to the environment; a subject which was described in the invitation letter for this Symposium, as "a subset of the debate over the adequacy of current law to protect the environment during international armed conflict and in non-international armed conflict operations involving the use of force."

I remember very well that during the preparatory phase on the discussions in the Sixth Committee in 1992 and 1993, when I was still Legal Adviser at the Netherlands Ministry of Foreign Affairs, this issue was deliberately omitted, because—as most States at that time indicated—it was preferred to concentrate on the primary, more substantive, matters first, in order to come to tentative conclusions regarding the adequacy of present-day international humanitarian law to protect the environment.

Raising the issue of individual responsibility means discussing enforcement measures under international humanitarian law which, in turn, will raise delicate questions of international criminal and national penal law.

I am, therefore, very grateful to the organizers of this Symposium that they have chosen as a main item such a delicate and often ignored topic as the efficacy of the existing legal framework to hold criminally accountable those individuals responsible for wanton destruction and damage to the environment. In discussing this issue, I will put much emphasis on available enforcement mechanisms and, perhaps, less on the issue of individual accountability as such. Both time and space limitations, however, ensure that I have to limit myself in this respect.

Before turning to this issue, I would like to make some preliminary observations, which have to be kept in mind.

II. Some Preliminary Issues

Firstly, we have to acknowledge that the subject of individual accountability for serious violations of international humanitarian law in general, has attracted much attention in recent times, as a consequence of the U.N. Security Council Resolutions on Bosnia (after having been ignored in State practice for almost 50 years!). In this respect, I may recall Security Council Resolutions 764 (13 July 1992), 771 (13 August 1992), 780 (6 October 1992), 808 (22 February 1993) and 827 (25 May 1993). It may be noted that in Resolutions 764 and 780, the Council speaks of 'persons who commit or order the commission of *grave breaches* of the Conventions' who will be held individually responsible in respect of such crimes, whereas in the later Resolutions 808 and 827 on Bosnia, the Council apparently prefers a less restrictive approach and refers to both the grave breaches of the 1949 Geneva Conventions and 'other serious violations of international humanitarian law for which persons may be held individually responsible'.[7] The same terminology, of course, can be found in the general provisions of Article 1 of the Statute of the War Crimes Tribunal for the former-Yugoslavia and, more specifically, in Articles 6 and 7 which deal with the personal jurisdiction of the Tribunal and individual criminal responsibility.[8] From those Articles and accompanying commentaries in the Secretary-General's Report,[9] it becomes clear that the scope of the principle of individual criminal responsibility extends to persons who have planned, instigated, ordered, committed or otherwise aided and

abetted in the planning, preparation or execution of a crime as referred to in Articles 2 to 5 of the Statute.[10]

Hence, and I recognize that much can be said about the appropriateness of this point of departure for the discussion on the criminal accountability of individuals responsible for wanton destruction and damage to the environment, I do feel it is justified to consider both the formulation of Article 7 on individual criminal responsibility, and the subject-matter jurisdiction as determined by Articles 2 to 5 of the Statute of the War Crimes Tribunal, as a correct reflection of the law as it stands today.

Therefore, those provisions, in my view, partly determine at the same time the conceptual framework within which we have to address the issue of the efficacy of individual accountability for wanton destruction and damage to the environment.

A second preliminary observation is closely related to the opinion which Dr. Lijnzaad and I already advocated in our 1992/1993 contribution to the Netherlands International Law Review and which was also put forward by the Netherlands in the discussions in the Sixth Committee of the United Nations at that time. We concluded that, although there is, supported by both conventional and customary law, a prohibition on inflicting unnecessary harm on the environment in times of armed conflict, "... those rules are neither easily comprehensible nor very clear" and that, therefore, "given this ambiguity and obscurity, there is a need for the development of a more coherent set of rules protecting the environment in times of armed conflict".[11] We did consider Articles 35 and 55 of Additional Protocol I and the provisions of the 1977 ENMOD Convention[12] as a "nucleus of a body of rules which affect the protection of the environment as such" but argued that those rules are in need of further development. One of my concerns was, and still is—despite all kinds of arguments put forward by various respected and experienced international scholars on international humanitarian law in numerous essays—that most of the relevant provisions of Hague and Geneva law were elaborated and developed at a time when the notion of protection of the environment, *per se*, both in times of peace and in war, was virtually absent. Doctrine does not make law![13]

Furthermore, Additional Protocol I, the most recently written general instrument on international humanitarian law, still has not received universal adherence and cannot be considered as an example of an instrument which has developed into generally binding rules of customary international law, whereas the relevant provisions, indeed, are not completely satisfactory if we start from the presumption that those provisions are also intended to cover the protection of the environment as such.[14]

I do wholeheartedly agree with the conclusion put forward by Professor Verwey during the Conference of the Alumni Association of the Hague Academy of International Law in 1994 when he stated that:

> ... (E)ven the most optimistic and dynamic interpretation of the relevant principles and rules could actually not justify the conclusion that one can rest assured that existing law on the protection of the environment in times of armed conflict were adequate.[15]

My argument is, therefore, that if the substantive provisions are already susceptible to different interpretations, what can you expect from international criminal law or national penal law enforcement?

A third preliminary observation I would like to make in relation to the determination of the legal and conceptual framework when addressing the issue of individual accountability for environmental damage during armed conflict, has to do with the far from perfect enforcement mechanisms of humanitarian law in armed conflict which are available to the international community.

The growing emphasis and reliance on penal enforcement mechanisms in the Geneva Conventions and Additional Protocol I —note the absence of any specific provision on individual criminal responsibility in the Hague Conventions of 1899 and 1907—is most probably also related to the relative failure of other implementation mechanisms in humanitarian law at a public law level, like State responsibility (still no binding international regulation), further legal restrictions on the use of reprisals since 1977, and the archaic and non-functioning of the system of Protecting Powers.[16] In addition, it is still a fact that many States are simply not yet ready to prosecute or implement their criminal legislation in this field of law. One of the more important fuctions of the International Committee of the Red Cross (ICRC) in this respect is the continuous education and advisory services it provides to governments. But the situation is far from perfect; one has to acknowledge this fact. At the same time, sometimes humanitarian objectives are more important than a sound and efficient criminal procedure; in other words, various objectives and different interests are at stake. National reconciliation, or arrangements within the framework of an armistice agreement within the context of an overall political settlement, may sometimes prove to be more important than national penal enforcement.

Enforcement of international humanitarian law through national penal law is necessary and required. However, we have to keep in mind the way in which the Geneva Conventions and Additional Protocol I have incorporated such penal law enforcement mechanisms and recognize the rather limited role such mechanisms can play in international armed conflicts in practice.[17] Furthermore, various States are still extremely reluctant to 'criminalize' environmental crimes. At the same time, the environment and its legal protection is still a relatively new concept. It simply takes time for a government to address the penal enforcement aspects.

Some remarks must be made about situations which can be characterized as 'non-international armed conflicts' when trying to describe the general conceptual framework. Here, I will limit myself to the definition of non-international armed

conflict as it appears in Article 1 of Additional Protocol II of 1977.[18] I will, therefore, not touch upon possible environmental damage resulting from military operations involving the use of force which cannot be described as 'war'("Military Operations Other Than War -MOOTW").[19]

With respect to the issue of individual criminal responsibility for wanton destruction of the environment in situations of non-international armed conflict, it seems that, at present, the instruments of international humanitarian law that may be invoked offer little prospect for effective and efficient penal enforcement.

Neither common Article 3 of the Geneva Conventions, nor Additional Protocol II, refer to the possibility of holding an individual responsible for the destruction of and wanton damage to the natural environment.[20] A dynamic interpretation will also not be of any assistance.

It is, furthermore, interesting to note that in the Statute of the International Criminal Tribunal for Rwanda which was adopted by the Security Council on 8 November 1994,[21] there is no reference to individual criminal responsibility for such acts. Article 4 does not include in its non-exhaustive enumeration of violations of Article 3 common to the Geneva Conventions and of Additional Protocol II, violations causing environmental damage, nor is there a reference to the above-mentioned provisions of Articles 14 and 15.

It seems therefore unlikely, even when applying an optimistic and dynamic interpretation, that the regulation and enforcement of international humanitarian law applicable in armed conflicts of a non-international character offer satisfactory solutions. It is still primarily a national penal affair and, therefore, dependent upon imperfect and inappropriate national penal law systems.

III. Individual Criminal Reponsibility in International Armed Conflicts: Some Observations

With these preliminary observations in mind, and having determined the conceptual framework within which the enforcement of relevant humanitarian law has to be effected, we can say something about the efficacy of the current law with respect to individual criminal responsibility for the destruction of and wanton damage to the environment *per se*.

A. Hague Law

We have already seen that the Conventions which belong to Hague law do not contain provisions which provide for individual criminal responsibility for violations of any of their rules. The London Agreement and the Charter of the Military Tribunal (1945) did, however, explicitly affirm individual responsibility (Article 6 of the Charter). Article 6 (b) referred to "plunder of public and private property, wanton destruction of cities, towns, or villages, or devastation not justified by military necessity." This was later repeated in General Assembly

Resolution 95 (I). Hence, it can not be said that pre-1949 law rejected individual criminal responsibility, but—and this is an important restriction—the Nuremberg episode was a rather special, *ad hoc* arrangement and offers little guidance for our topic.

Case law from this period with a certain relation to our subject, is also rather ambigious.[22]

B. Geneva Law

1. The 1949 Conventions

Under the 1949 Geneva Conventions, a more advanced enforcement system, emphasizing the sanctioning of humanitarian law by penal law, was elaborated. Whether this offers more prospects to accuse and convict individuals for environmental damage and destruction, remains to be seen however. It is not the intention to describe in great detail the relevant 'enforcement' provisions of the 1949 Conventions as this falls outside the scope of this paper. The only relevant issue within the context of this contribtion is to determine whether the 1949 system offers opportunities for a successful penal action against individuals when environmental damages have occurred which can be attributed to that particular individual.

All four Conventions contain a specific provision on the 'Repression of Abuses and Infractions' of the Conventions.[23] These Articles oblige High Contracting Parties to:

> (a) enact any legislation to provide effective penal sanctions for persons committing, or ordering *any* of the *grave breaches* [which are defined in the respective Conventions];[24]
>
> (b) search for persons alleged to have committed, or to have ordered such grave breaches and to bring such individuals before its own courts or to hand them over to another High Contracting Party;
>
> (c) take measures which are necessary to suppress violations of the Conventions, not falling into the category of grave breaches.

It must be observed in the context of the subject-matter of this presentation that, in order to qualify as a grave breach, conduct must be directed at 'protected' objects. This is an important restriction, since the Conventions attach this status only to objects which are in the hands of the adversary. Furthermore, Convention IV speaks about persons and objects which shall be 'respected and protected.' Only thus qualified does an 'object' fall under the category 'grave breach.'

The second step, therefore, is to determine whether the formulation of grave breaches under the 1949 Conventions can serve as a guide. Such prospects seem rather bleak.

Under the Conventions the 'extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly' is characterized as a 'grave breach.' This wording has been inspired by the formulation of Article 6 (b) of the Nuremberg Charter, which, in turn, is based on Article 23 (g) of the 1907 Hague Regulations (one might speak of the incorporation of Hague law into Geneva law).

At first sight it is not immediately clear what provisions come to mind, but Article 53 of Convention IV, which has a rather general nature, seems to qualify. However, the qualifications of Article 147, necessary to determine whether we speak of a 'grave breach' ('protected objects', 'extensive', 'unlawfully' and 'wantonly') do not appear in Article 53. In other words, only if those requirements have been fulfilled is there a possibility to bring individuals to court under the grave breach provision. Violations of Article 53 as such, which are not grave, may be solved by resorting to penal law, but States may, at the same time, have a preference for disciplinary measures; States are not under an obligation to implement this provision by means of legislative measures.

In the light of the strict requirements applicable to criminal law (*nulla poena* principle, evidence, due process, etc.), the absence of ecological awareness in the period in which the Conventions were developed, the consequential imperfections in national implementation legislation and the preliminary observations made above, it seems rather unlikely that an individual will be accused and convicted (or extradited) on the basis of extensive, unlawful and wanton destruction of the environment *per se* under national penal law which sanctions either Article 53 or Article 147 (or any of the other relevant grave breach provisions in the Geneva Conventions). It seems unlikely that, even if serious environmental damage results from violations of provisions of the Geneva Conventions, the charges will be successful on the basis of wanton and excessive destruction of the environment *per se*.

2. Additional Protocol I

In Additional Protocol I the concept of 'grave breaches' has been developed further. Furthermore, Additional Protocol I contains provisions which specifically deal with the protection of the natural environment *per se*.[25]

The first step we have to take is to determine whether, for the purposes of this paper, Additional Protocol I adds something to the Geneva Conventions when it comes to penal law enforcement.

The methodology followed in Article 85 is identical to the approach found in the Geneva Conventions when it comes to a repression of breaches of the Protocol (and of the Conventions). States are under an obligation to enact legislation necesary to provide for effective penal sanctioning. In addition, they have to assert universal jurisdiction and provisions must be adopted making handing over of individuals accused of having committed such grave breaches, possible.

For violations which do not qualify as grave breaches, "measures" have to be taken to suppress such breaches. As we have seen, this does not necessarily imply that penal legislation must be developed.

Article 85(3) b. and c., refers to conduct ("launching an indiscriminate attack") relating to damage to civilian objects which, when committed wilfully and in violation of the Protocol, may qualify as a grave breach provided, however, that certain specific consequences take place and that such conduct causes death or serious injury to body or health. There is a reference to Article 57 (2) a. iii—that provision speaks of excessive damage ". . . in relation to the concrete and direct military advantage anticipated." One may argue, therefore, that the responsibility rests with the commanding officer ordering the attack, or his superior in determining the 'objects.'

Again, despite the fact that such conduct may have serious environmental consequences and may result in wanton destruction of the environment, it is rather questionable whether charges will be successful under penal law systems when the charge is based on wilful conduct having caused 'excessive' damage to civilian objects. The norm violated in Article 85 (3) b. is Article 51 (5) b. of the Protocol (protection of the civilian population).

Article 85 (3) c. refers back to the violation of the provisions of Article 56 of the Protocol (dams, dikes and nuclear electrical generation stations). That Article constitutes a *lex specialis* of the general principle to be found in Article 51. Although I am not convinced that Article 85 (3) c. really adds something to (3) b., one may conclude that, in theory, charges can be brought against individuals.

Paragraphs 3 (b) ('non-defended localities and demilitarized zones') and (4) d. of Article 85 (historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples) are the only instances in Additional Protocol I where an attack directed against 'objects' may qualify as a grave breach. The norms violated are Articles 59, 60 and 53 respectively, the difference being that Article 85 (4) does not mention the requirement that there be victims.

Article 85 (4), however, formulates at least four additional requirements which must be fulfilled:

(a) such objects must be clearly recognizeable;

(b) special protection by means of a special arrangement;

(c) such objects should not be used in support of the military effort (Article 53 b); and

(d) should not be located in the immediate proximity of military objectives.

The way in which this provision is drafted raises many interpretative issues and questions, which fall outside the scope of this paper. Actually, I sincerely doubt whether the provision adds much to the related provision of Article 147 of Geneva Convention IV. The ambiguity and interpretative issues will make a successful

charge based on an "environmental crime" even more doubtful under this provision.

IV Conclusions

To conclude, Additional Protocol I, although creating new 'grave breaches.' does not develop the system of penal enforcement for environmental damage much further. Opportunities to effectively enforce international humanitarian law in the field of environmental crimes are, because of both technical and political reasons, rather limited.

This is both the consequence of the imperfections in the system of penal law enforcement, as elaborated in the 1949 Geneva Conventions and Additional Protocol I, and the way in which States have implemented the relevant provisions in their national criminal legislation. Furthermore, there are serious flaws in the extradition mechanisms as they are incorporated in international humanitarian law. Extradition of war criminals in general has already been the exception rather than the rule (nationality exception, political offense exception, statutory limitations, or the requirement of a treaty); the possibility to extradite war criminals for the destruction of the environment seems, therefore, hardly a serious option.

The successful prosecution of war criminals for 'environmental' war crimes also seems hardly to be a real possibility. Apart from the *lacunae* in the relevant international instruments, the existing imperfections in implementation at the national level must be recognized. One may point not only to technical problems, for example, related to the gathering and use of evidence in a criminal procedure, but also to the practical difficulties related to the system of mutual assistance and cooperation in criminal matters of this sort (the rather meagre results of the provisions on universal jurisdiction—largely a consequence of the lack of appropriate national penal legislation—do not contribute to an optimistic picture).[26]

Perhaps the reliance on the penal enforcement mechanisms in the Conventions and Additional Protocol I were not supported by the firm conviction that such mechanisms would indeed become operative and effective in practice. Perhaps it was never the political intention to create really effective enforcement mechanisms based on national criminal law and their introduction was merely a recognition of, and tribute to, ethical norms and principles which the international community of States considered to be applicable at all times. If that is the case, however, it seems appropriate, some twenty years after the formulation of the Additional Protocols and in the light of recent developments, to seriously concentrate on more effective implementation and sanctioning mechanisms of international humanitarian law, both at the international level as well as at the national level, and to adequately reflect the changes which have taken place in peace-time

international law with respect to the wanton destruction of, and damage to, the environment.

Notes

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1. Gasser, *For Better Protection of the Natural Environment in Armed Conflict: a Proposal for Action*, 89 A.J.I.L. 637 (1995); Verwey, *Protection of the Environment in Times of Armed Conflict: in Search of a New Legal Perspective*, 8 Leiden J. Int'l L. 7 (1995); Tarasofsky, *Legal Protection of the Environment during International Armed Conflict*, 1993 Neth. Y.B. Int'l L. 17-79; Verwey, *Observations on the Legal Protection of the Environment in Times of International Armed Conflict*, 1994 Hague Y.B. Int'l L. 35-52; Morris, *Protection of the Environment in Wartime: The United Nations General Assembly Considers the Need for a New Convention*, 27 Int'l Lawyer, 775 (1993); Bothe, *The Protection of the Environment in Times of Armed Conflict: Legal Rules, Uncertainty, Deficiencies and Possible Developments*, 1991 Ger. Y.B. Int'l L. 54-62; Green, *The Environment and the Law of Conventional Warfare*, 1991, Can. Y.B. Int'l L. 222-237; Diederich, *'Law of War' and Ecology: a Proposal for a Workable Approach to Protecting the Environment through the Law of War*, 136 Mil. L. Rev. 137-160 (1992); Rackleff, *The International Council of Environmental Law: Law Concerning the Protection of the Environment in Times of Armed Conflict*, 3 Colorado J. Int'l Env. L. and Pol. 609 (1992); Antoine, *International Humanitarian Law and the Protection of the Environment in Times of Armed Conflict*, 32 Int'l Rev. of the Red Cross, 517, 554 (1992); Momtaz, *Les Regles Relative a la Protection de l'Environnement au Cours des Conflits Armes a l'Epreuve du Conflit entre l'Irak et le Koweit*, 1991 Annuaire Francais de Droit International 203-219; Lavielle, *Les Activites Militaires, la Protection de l'Environnement et le Droit International*, 4 Revue Juridique de l'Environnement 421 (1992); *see also* 73 Revue Internationale de la Croix-Rouge 599 (1991).

2. Lijnzaad & Tanja, *Protection of the Environment in Times of Armed Conflict: the Iraq-Kuwait War*, 2 Neth. Int'l L. Rev. 169 (1993).

3. For a recent contribution *see*, Gasser, *For Better protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 A.J.I.L. 637 (1995). *See also*, Roberts, *Failures in Protecting the Environment in the 1990-91 Gulf War in*: THE GULF WAR 1990/91 IN INTERNATIONAL AND ENGLISH LAW, (Rowe ed. 1993) at 111-154.

4. Verwey, *Observations on the Legal Protection of the Environment in Times of Armed Conflict*, 1994 Hague Y.B. Int'l L. 35.

5. *See*, in this context, *inter alia*, the papers presented by M. Bothe and L. Green—also participating in this Symposium—during the Ottawa Conference on the Use of the Environment as a Tool of Conventional Warfare, 9-12 July, 1991. According to Bothe: "A modern opinion... favours the non-supension of certain types of obligations even between belligerents. It would appear that some basic rules relating to the protection of the environment might be counted among the latter ones". Bothe, *Legal Rules, Uncertainty, Deficiencies and Possible Developments*, Ottawa (1991). During the same Conference, Green contested this conclusion and observed that: "... there is no general rule of customary or treaty law... that can be said to apply at all times in both peace and war". Green, *The Environment and the Law of Conventional Warfare*, *supra* n. 1.

6. For example, Schutte, *The System of Repression of Breaches of Additional Protocol I*, *in*: HUMANITARIAN LAW OF ARMED CONFLICT: CHALLENGES AHEAD. ESSAYS IN HONOUR OF FRITS KALSHOVEN, (Delissen & Tanja eds 1991) at 177-196.

7. It may be assumed that this also encompasses the 'new' grave breaches of Protocol I Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 1977, 1125 U.N.T.S. 3, *reprinted in* 16 I.L.M. 1391 (1977). For a discussion of the concept of grave breaches and the relation in this respect between the 1949 Conventions and Additional Protocol I, *see* Schutte, *supra*, n. 6.

8. Article 6 reads:

The International Tribunal shall have jurisdiction over natural persons pursuant to the provisions of the present Statute.

Article 7 provides:

> 1. A person who planned, instigated, ordered, committed or otherwise aided and abetted in the planning, preparation or execution of a crime referred to in Articles 2 to 5 of the present Statute, shall be individually responsible for the crime.
>
> 2. The official position of any accused person, whether as Head of State or Government or as a responsible Government official, shall not relieve such person of criminal responsibility nor mitigate punishment.
>
> 3. The fact that any of the acts referred to in Articles 2 to 5 of the present Statute was committed by a subordinate does not relieve his superior of criminal responsibility if he knew or had reason to know that the subordinate was about to commit such acts or had done so and the superior failed to take the necessary and reasonable measures to prevent such acts or to punish the perpetrators thereof.

4. The fact that an accused person acted pursuant to an order of a Government or of a superior shall not relieve him of criminal responsibility, but may be considered in mitigation of punishment if the International Tribunal determines that justice so requires.

Articles 2 to 5 referred to in Article 7 of the Statute are not restricted to the grave breaches as formulated in the relevant provisions of the 1949 Geneva Conventions, but cover, in addition to the grave breaches enumerated in those four documents, also other violations of international humanitarian law like violations of the laws and customs of war, genocide and crimes against humanity.

Although the differences in scope and meaning between the 'grave breaches' under the 1949 Conventions and the 'grave breaches' as laid down in Additional Protocol I, and 'war crimes' or other 'serious violations of international humanitarian law', raise interesting legal questions, this contribution will not address this aspect in depth.

9. Report of the Secretary-General Pursuant to Paragraph 2 of Security Council Resolution 808 (1993), S/25704, 3 May 1993 and S/25704/Corr. 1, 30 July 1993.

10. *Id*, paras 50-59.

11. Lijnzaad & Tanja, *supra*, n. 2 at 196-197.

12. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, *reprinted in* 16 I.L.M. 88 (1977).

13. This does not, however, mean that I am of the opinion that there are no general rules available to protect the environment during armed conflict. My argument is that rules which can be invoked need further development in the light of the developments which have taken place since 1972 (Stockholm Declaration) in the field of international environmental law and the evolution in the thinking on environmental protection in the international community.

14. Verwey is very outspoken on this matter. He speaks in this context of the "... archaic nature of [those] provisions" and refers to the "... anthropocentric nature of 'Geneva' law, Protocol I included, ... [which] ... cannot do justice to the need of environment protection as a primary value in itself. ..."

15. Verwey, *supra* n. 4 at 37.

16. This is not to say, of course, that in the pre-1949 system penal enforcement did not play a role at all. One only has to look at the events with respect to the Nuremberg trials and the various national penal enforcement procedures which have taken place after the Second World War (notably the United States, France and the United Kingdom).

17. In this respect, the renewed and recent efforts of the International Law Commission (Draft Statute for an International Criminal Court) and the ensuing discussions in the Sixth Committee to establish an International Criminal Court and to create an international criminal jurisdiction, may in the future have positive effects on the enforcement of international humanitarian law and partly enhance its efficacy and—perhaps—credibility. Since the creation of such a Court, including its general or near universal acceptance, will still take many years, this aspect will not be further elaborated upon.

At the same time, the creation of the above-mentioned War Crimes Tribunal for the former-Yugoslavia (and the Rwanda Tribunal) may also contribute to the efficacy of criminal enforcement and development of international humanitarian law at an *international* level, but those Courts are, of course, of an *ad hoc* nature.

18. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-international Armed Conflicts (Protocol II), 1977, 1125 U.N.T.S. 609, *reprinted in* 16 I.L.M. 1442 (1977).

19. I have some doubt about the use of the MOOTW-terminology in the context of Additional Protocol II and, therefore, international humanitarian law.

Article 1 of Additional Protocol II provides the High Contracting Parties with a definition which contains certain qualifications and requirements in order to be able to legally define an armed conflict as being of a non-international nature. The scope and applicability of Additional Protocol II is, therefore, determined by this definition. It seems that what is meant with 'MOOTW' may also be applicable in situations which, in a legal sense, are neither regulated nor covered by the provisions of Additional Protocol II.

20. Additional Protocol II does not contain any provision relating to the protection of the environment *as such*, although Articles 14 and 15—under Part IV on the general protection of the civilian population—may have some relevance in this respect. Those Articles, however, are not referred to in Article 6 on penal prosecutions which applies to the prosecution and punishment of criminal offenses related to the armed conflict.

21. U.N. Security Council Resolution 955 (1994).

22. As far as the present author knows, two cases may be of some relevance. One concerns a Polish case in which the War Crimes Commission had to determine whether certain German civil servants could be listed as 'war criminals' because of excessive timber felling ("... the wholesale cutting of Polish timber to an extent far in excess of what was necessary to preserve the timber resources of the country".) It was determined that this did constitute a form of pillage. In the case of *USA vs. Wilhelm List et al. (Hostages Case)*, however, the destruction of communication and transport facilities and houses in Norway (province of Finnmark) was not considered a war crime.

23. Geneva Conventions, 6 U.S.T. 3114/3217/3316/3516; 75 U.N.T.S. 31/85/135/287; Arts. 49 (Convention I); 50 (Convention II); 129 (Convention III); 146 (Convention IV).

24. Emphasis added. A similar provision can be found in Article 28 of the Hague Convention of 14 May 1954 on the Protection of Cultural Property in the Event of Armed Conflict (an elaboration of Article 27 of the 1907 Hague Regulations). Although certain provisions of that Convention seem relevant for our purpose, it will not be addressed.

25. Article 35(3) reads:

> It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause long-term and severe damage to the natural environment.

Article 55 provides:

> 1. Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.
>
> 2. Attacks against the natural environment by way of reprisals are prohibited.

26. *See* in this respect the vague 'obligation' elaborated in Arts. 88 & 89 of Additional Protocol I. For a very pessimistic overview, *see* Wijngaert, *The Suppression of War Crimes under Additional Protocol I, in* Delissen & Tanja eds. *supra* n. 6 at 197-206.

Chapter XXIX

Comment: Criminal Responsibilities for Environmental Damage

Professor Howard S. Levie*

I am designated in the program as a commentator and in this paper will restrict myself to comments. I am not going to present any of my own ideas except by way of comment on the two papers of our two presentors—Professor Bothe and Doctor Tanja—apart from one preliminary paragraph. In that preliminary paragraph I wish to point out to you some evidence of the extent that we have progressed in our desire to protect the planet Earth from the depredations of mankind, particularly during armed conflict and other military operations. Contrary to our discussions at this Symposium, you will not even find the word "environment," or the word "ecology," in the index to that classic of international law, the seventh edition of the second volume of Lauterpacht's *Oppenheim's International Law*, published in 1952[1]; nor in the index to the second volume of Schwarzenberger's work with the same title, published in 1968.[2]

I have only one problem with Professor Bothe's presentation. He questions whether there is a duty imposed on States "to punish violations below the level of grave breaches." The third paragraph of common Articles 49/50/129/146 of the four 1949 Geneva Conventions for the Protection of War Victims obligates the Parties to suppress all violations of those instruments "*other than . . . grave breaches;*"[3] and Article 85(1) of the 1977 Additional Protocol I refers to the suppression of "*breaches and grave breaches*" of that Protocol.[4] Accordingly, there is no doubt in my mind that breaches other than "grave breaches" of those international agreements are punishable.

I have no difficulty whatsoever with Dr. Tanja's initial conclusion that we are fully justified in considering that present-day international law, as most recently set forth in the Statutes of the two International Tribunals established by the United Nations Security Council, the one for the former-Yugoslavia,[5] the other for Rwanda,[6] indicates that there is individual criminal responsibility for violations of international humanitarian conventions. However, I do not have the difficulty that he appears to have in operating under present customary and conventional law. It will be recalled that as long ago as shortly after World War II, before a Military Tribunal sitting in Nuremberg in one of the so-called "Subsequent Proceedings," German General Rendulic was charged with ordering

a far-reaching scorched-earth policy during the retreat of his army from Finland across the Finnmark province of Norway.[7] Towns were levelled, bridges blown up, water courses diverted, crops and animals were destroyed, etc. His information that the Soviet army was in close pursuit of his troops was incorrect and the destruction that he had ordered did not actually fall within the doctrine of military necessity. The Tribunal held, in effect, that he had acted in good faith, that he had a right to act on the information available to him at the time, that he believed that military necessity required such action, and much to the dismay of the Norwegians, despite the widespread damage to property, crops, and the environment which his army had accomplished, he was acquitted of this charge. However, there is no question but that if the Tribunal had found that he had acted wantonly, he would have been adjudged guilty of a war crime.[8]

I must also agree with Dr. Tanja that regrettably there is nothing in international law protecting the environment from conflicts which are non-international in scope, probably because, until the 1977 Additional Protocol II,[9] international diplomatic conferences did not concern themselves with such conflicts, considering them to be within the ambit of national laws and a very small area of customary international law (the doctrine of non-interference, etc.).

Unfortunately, I cannot agree with his conclusion that neither the 1907 Hague Regulations,[10] nor the London Charter of the International Military Tribunal (I.M.T.) which sat in Nuremberg,[11] contributes to the solution of the problem of the protection of the environment in time of war or other military operations. Even though there was no specific provision in the Hague Regulations making such violations punishable, trials during and after World War I, and after World War II, conducted by many different nations, involved charges of crimes which were, in effect, violations of those Regulations.[12] As for the London Charter, it was drafted by representatives of France, the Soviet Union, the United Kingdom, and the United States, and the Agreement to which it was attached was subsequently adhered to by nineteen other nations.[13]

For that time frame, twenty-three nations, including four of the then most important ones, represented a large part of the existing international community. Moreover, the General Assembly of the United Nations "affirmed the principles of international law recognized by the Charter of the Nuremberg Tribunal and the judgment of the Tribunal."[14] The International Military Tribunal held that the Hague Regulations were a part of customary international law, binding on all nations, whether or not they were Parties to it. I am of the opinion that even though the Hague Regulations contain no penalty provisions for violations of their prohibitions, punishment for such violations is legally permissible; and that the "Nuremberg episode" was more than a "special, *ad hoc* arrangement." The fact that its basic provisions are to be found in the Statutes of the two International

Tribunals established in recent years by the Security Council of the United Nations demonstrates its lasting importance.

I am afraid that I must also disagree with Dr. Tanja with respect to his rather shabby treatment of Article 147 of the 1949 Fourth Geneva Convention.[15] Each grave breach listed is an offense in and of itself and that is true of the grave breach of "extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly". In effect, that provision indicates that not every destruction of property mentioned in Article 53 of the Convention is a grave breach thereof. There may be unintended destruction; there may be minor destruction; and there may be excusable "extensive destruction", such as that ordered by General Rendulic under a misapprehension and therefore not wanton. Moreover, as Article 146(3) of the Convention indicates, there will be violations of the Convention which are not grave breaches but which will still be offenses that the State has a duty to suppress: unlawful and wanton destruction of property not attaining the status of "extensive" might be such an offense. It is true that unjustifiable destruction of property might not be charged as an offense against the environment *per se*. It was not done in General Rendulic's case; but what difference does that make? The result is the same. The person who is guilty of extensive destruction of property not justified by military necessity and carried out unlawfully and wantonly, which destruction adversely affects the environment, will be punished for his offense whatever the specific charge may be. Of course, what has just been said with respect to Article 147 of the 1949 Fourth Geneva Convention is equally applicable to Article 85 of the 1977 Additional Protocol I,[16] which contains the relevant grave breaches provisions of that instrument.[17]

I heartily agree with Dr. Tanja that there are serious flaws in the extradition provisions of both the 1949 Geneva Conventions and the 1977 Additional Protocol I. Unfortunately, this is not a problem unique to those treaties.

As has been pointed out, the first international convention specifically directed towards the protection of the environment in time of hostilities or other military operations was the so-called ENMOD Convention.[18] It was followed shortly thereafter by Articles 35(3) and 55 of Additional Protocol I.[19] Article 2(4) of Protocol III to the 1980 Conventional Weapons Convention,[20] containing restrictions on the use of incendiary weapons against "forests or other plant cover", may also be considered to be directed towards the protection of the environment. Of course, a number of treaties relating to various aspects of nuclear weapons have an impact on the environment, as do those prohibiting bacteriological and chemical weapons and warfare.[21] President Clinton has prohibited nuclear testing by the United States — but the same cannot be said for all of the other nuclear Powers. The Chinese testing of nuclear weapons in 1995, and France's announcement of its intention to initiate eight nuclear tests in the South Pacific,

beginning in September 1995, have caused much concern among the international community. New Zealand, which had brought an action against France on this subject in the International Court of Justice in 1973,[22] as did Australia, has again instituted proceedings against France, based upon a 1974 commitment made to it by France and has asked, as a provisional measure, that "France refrain from conducting any further nuclear tests" at the named atolls.[23] Australia has requested permission to intervene in those proceedings.[24] (Nevertheless, on 5 September 1995 France exploded a nuclear device on Mururoa Atoll in the South Pacific.)[25] Moreover, on 3 September 1993, the World Health Organization (WHO) requested an advisory opinion from the International Court of Justice on the following question:

> In view of the health and environmental effects, would the use of nuclear weapons by a State in war or other armed conflict be a breach of its obligations under international law including the WHO Constitution?[26]

Subsequently, on 15 December 1994, the General Assembly of the United Nations adopted Resolution 49/75 (1994) entitled "Request for an Advisory Opinion from the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons." The question posed by the General Assembly in its request asks:

> Is the threat or use of nuclear weapons in any circumstance permitted under international law?[27]

Both of those matters are presently pending before the Court.

One has but to read the presentation made by Professor Szasz at the 1991 Annual Meeting of the American Society of International Law[28] to become aware of the fact that while protecting the environment, particularly from the havoc of war, has become a matter of major concern for many international organs, actual progress in this regard has been minimal. The Gulf War included numerous acts by Iraq aimed directly at the environment, many of which had no military significance—but any suggestions that the person or persons responsible for those acts suffer punishment died on the vine.[29]

In 1980, the General Assembly of the United Nations adopted a Resolution entitled "Historical responsibility of States for the preservation of nature for present and future generations" in which one of the preambular paragraphs stated:

> *Noting* that the continuation of the arms race, including the testing of various types of weapons, especially nuclear weapons, and the accumulation of toxic chemicals are adversely affecting the human environment and damaging the vegetable and animal world;[30]

One of the operational paragraphs states:

> *Draws the attention* of States to the fact that the continuing arms race has pernicious effects on the environment and reduces the prospects for the necessary international co-operation in preserving nature on our planet.[31]

If the production of armaments and their testing adversely affect the human environment, it is not difficult to envision the effect of warfare itself on the environment.

Concerning Iraqi actions against the environment, the following was found:

> The Gulf was fouled when between seven and nine million barrels of oil were discharged into it by Iraq. In the desert, five hundred and ninety oil wellheads were damaged or destroyed: five hundred and eight of them were set on fire, and the remaining eighty-two were damaged in such a manner that twenty-five to fifty million barrels of oil flowed freely from them onto the desert floor. The result was total devastation of the fragile desert ecological system and the pollution of water sources critical to survival.[32]
>
> ... From 9 to 12 July 1991, the Government of Canada, in concert with the Secretary General of the United Nations, hosted a conference of international experts in Ottawa, Ontario, to consider the law of war implications of the environmental devastation caused by the Iraqis. There was general agreement that the actions cited constitute violations of the law of war, specifically:
>
> > a. Article 23(g) of the Annex to the 1907 Hague Convention IV Respecting the Customs of War on Land of 18 October 1907, forbids the destruction of "enemy property unless ... imperatively demanded by the necessities of war;" and,
> >
> > b. Article 147 of the GC [1949 Geneva Civilians Convention], makes the "extensive destruction ... of property, not justified by military necessity and carried out unlawfully and wantonly" a grave breach.
>
> ... Review of Iraqi actions makes it clear that the oil well destruction had no military purpose; it was designed to wreck Kuwait's future — a scorched earth policy carried to the extreme.[33]

It would appear indisputable that Saddam Hussein and the Iraqis were guilty of violating the provisions of Article 23(g) of the 1907 Hague IV Regulations,[34] Regulations which the International Military Tribunal at Nuremberg held to be part of customary international law,[35] and Article 147, the grave breaches provision of 1949 Geneva Convention No. IV Relative to the Protection of Civilian Persons in Time of War,[36] both of which prohibit the destruction of enemy property not justified by military necessity. They were, therefore, guilty of a war crime for which they should have been tried and, if found guilty by a court of competent jurisdiction, punished. Unfortunately, as so often happens, to have included a provision concerning trials for war crimes in the terms of the cease-fire

would undoubtedly have lengthened the period of hostilities and would eventually have resulted in Saddam Hussein and other high ranking Iraqis seeking refuge in some other renegade country which would have given them asylum and would have found some basis for refusing to try or extradite them as required by the 1949 Geneva Conventions.

Resolution 687 of the Security Council of the United Nations, adopted on 8 April 1991, set forth the conditions which Iraq had to accept in order to have a cease-fire.[37] Paragraph 16 of that instrument reaffirmed that "Iraq . . . is liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources". Unfortunately, that provision referred only to civil, not criminal, liability.

While I have no knowledge of any military activities in the Yugoslav imbroglio which were directed specifically at the environment, I am sure that incidents of that nature have occurred. However, I am pessimistic concerning the possibility of the trial and punishment of the individuals responsible for such offenses by the International Tribunal for the former-Yugoslavia.[38] I hope that I will find that my pessimism in this regard is unjustified. Torturing or killing an enemy civilian or a prisoner of war, or raping an enemy woman, are pernicious crimes — but they affect only one victim. Attacks on the environment affect all humanity and can, eventually, make our planet uninhabitable.

I will close with a quotation from a statement made in a Panel at the 1991 Annual Meeting of the American Society of International Law:

> . . . .I am somewhat inclined to think that now it may be time for us to seriously consider the possibility of establishing an appropriate international mechanism to cope with such situations as environmental terrorism or aggression.[39]

Notes

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1. OPPENHEIM, INTERNATIONAL LAW: A TREATISE, VOL. 2, DISPUTES, WAR AND NEUTRALITY, (Lauterpacht ed., 7th ed., 1952).

2. SCHWARZENBERGER, INTERNATIONAL LAW (AS APPLIED BY INTERNATIONAL COURTS AND TRIBUNALS), Vol. 2 (1968).

3. 1949 Geneva Conventions for the Protection of War Victims, 12 Aug. 1949, 6 U.S.T. 3114-3695, T.I.A.S. 3362-3365; 75 U.N.T.S. 31-417, *reprinted in* THE LAWS OF ARMED CONFLICTS (Schindler & Toman eds., 3d ed., 1988) at 373-594 (hereinafter Schindler & Toman) (emphasis added).

4. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977, 1 Official Records of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts 155 (1978); 72 A.J.I.L. 457 (1977); 16 I.L.M. 1391 (1977); Schindler & Toman, *supra* n. 3, at 621 (emphasis added).

5. United Nations Security Council Resolution 827 (1993), *International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former-Yugoslavia Since 1991*, U.N. Doc. S/RES 827 (1993), *reprinted in* 32 I.L.M. 1203 (1993).

6. United Nations Security Council Resolution 955 (1994), *International Criminal Tribunal for the Prosecution of Persons Responsible for Genocide and Other Serious Violations of International Humanitarian Law Committed in the Territory of Rwanda*, U.N. Doc. S/RES 955 (1994), *reprinted in* 33 I.L.M. 1600 (1994).

7. *United States v. Wilhelm List et al (The Hostage Case)*, 11 TRIALS OF WAR CRIMINALS BEFORE THE NUREMBERG MILITARY TRIBUNALS 1230 (1950). Dr. Tanja mentions this case in his footnote 22. However, I believe that he misinterprets the meaning of the decision.

8. *Id.*, at 1295-97.

9. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 8 June 1977, 1125 U.N.T.S. 609.

10. 1907 Hague Convention No. IV Respecting the Laws and Customs of War on Land (with annexed Regulations), 18 Oct. 1907, 36 Stat. 2277; 100 B.F.S.P. 338; 2 A.J.I.L. (Supp.) 90 (1908); Schindler & Toman, *supra* n. 3, at 63.

11. Charter of the International Military Tribunal Attached to the Agreement for the Prosecution and Punishment of the Major War Criminals of the European Axis, 8 Aug. 1945, 59 Stat. 1544; E.A.S. 472; 82 U.N.T.S. 279; 3 TREATIES AND OTHER INTERNATIONAL AGREEMENTS OF THE UNITED STATES OF AMERICA, 1776-1949, (Bevans ed. 1968-1976) at 1238; LEVIE, TERRORISM IN WAR: THE LAW OF WAR CRIMES (1993) at 549 [hereinafter LEVIE, WAR CRIMES]; Schindler & Toman, *supra* n. 3, at 911.

12. In this regard, *see* Levie, *The Statute of the International Tribunal for the Former Yugoslavia: A Comparison with the Past and a Look at the Future*, 21 Syr. J. Int'l L. & Com. 1, 9 (1995).

13. LEVIE, WAR CRIMES, *supra* n. 11, at 51.

14. U.N.G.A. Res/95/1, 11 Dec. 1946, 1 RESOLUTIONS OF THE UNITED NATIONS (GENERAL ASSEMBLY) (Djonovich ed. 1972) at 175.

15. Convention No. IV Relative to the Protection of Civilian Persons in Time of War, 12 Aug. 1949, 6 U.S.T. 3516; 75 U.N.T.S. 287; 157 B.F.S.P. 355; Schindler & Toman, *supra* n. 3, at 495.

16. *See supra*, n. 4.

17. The United States has not ratified Additional Protocol I; and Articles 35(3) and 55, the two articles dealing with the environment, are not among those which the United States "supports". *See* Levie, *The 1977 Protocol I and the United States*, 38 Saint Louis U.L.J. 469, 470 n. 4 (1993-1994).

18. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, 31 U.S.T. 333; T.I.A.S. 9614; 16 I.L.M. 88 (1977); Schindler & Toman, *supra* n. 3, at 163. The United States is a Party to this Convention, as are most of the major Powers.

19. *See supra*, n. 4.

20. Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons, Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, 1980, Schindler & Toman, *supra* n. 3, at 179, 190; 19 I.L.M. 1524, 1534 (1980). In ratifying this Convention, the United States ratified its Protocols I and II, but did not ratify its Protocol III.

21. *See* Westing, *Proscription of Ecocide: Arms Control and the Environment*, 30 Bull. of Peace Proposals 24 (January 1974), *reprinted in* THE VIETNAM WAR AND INTERNATIONAL LAW, Vol. 4 (Falk ed. 1976) at 283. In July 1993, the International Court of Justice established a "Chamber for Environmental Matters" consisting of seven of the judges of the Court. I.C.J. Communique No. 93/20.

22. 1974 I.C.J. 457.

23. I.C.J. Communique No. 95/22, 21 Aug. 1995.

24. I.C.J. Communique No. 95/23, 23 Aug. 1995. So, too, have Samoa and the Solomon Islands, (I.C.J. Communique, No. 95/24, 24 Aug. 1995), the Marshall Islands, and the Federated States of Micronesia (I.C.J. Communique No. 95/25, 28 Aug. 1995).

25. The news of the French action resulted in riots in Tahiti, a South Pacific colony of France. A hearing was held by the International Court on the New Zealand application on 11 September 1995. The application was denied by the Court. Of course, so, too, were all the corollary applications.

26. I.C.J. Communique No. 93/26, 3 Sept. 1993.

27. I.C.J. Communique No. 94/24, 23 Dec. 1994.

28. Szasz, *The Gulf War: Environment as a Weapon*, 1991 Proc. A.S.I.L. 215.

29. In ARKIN *et al*, ON IMPACT: MODERN WARFARE AND THE ENVIRONMENT: A CASE STUDY OF THE GULF WAR (1991), the authors state at 23 that:

> for political reasons, the Bush Administration, and numerous western allied governments, prefer not to accuse Iraq of breaching any convention or legal principle or humanitarian rule, and instead still accuse Saddam Hussein of "environmental terrorism."

Unfortunately, they do not tell us what the "political reasons" were, nor why Saddam Hussein could not have been tried for "environmental terrorism."

30. U.N.G.A. RES/35/8, 30 Oct. 1980, XIX RESOLUTIONS OF THE GENERAL ASSEMBLY (Djonovich ed. 1985) at 195.

31. *Id.*

32. The number of Kuwaiti oil wells destroyed by fire or explosives is sometimes placed as high as 732. *See, e.g.*, McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, 1993 Hague Y.B. Int'l L. 75.

33. U.S. Department of the Army, War Crimes Documentation Center, International Affairs Division, Office of the Judge Advocate General, *Report on Iraqi War Crimes* (Desert Shield/Desert Storm) 1992 [Unclassified Version], at 10-11. An elaboration of this problem will be found in ARKIN, *supra* n. 29, at 21-25, 62-72.

34. *See supra*, n. 10.

35. TRIAL OF THE MAJOR WAR CRIMINALS, Vol. 1 (1947) at 253-254; NAZI CONSPIRACY AND AGGRESSION (1947) at 83.

36. *See supra*, n. 15

37. United Nations Security Council Res/687 (1991), 8 Apr. 1991, *reproduced in* 30 I.L.M. 846 (1991).

38. *See supra*, n. 5.

39. Remarks by Shinya Murase in a Panel on "New Developments in International Environmental Law", 1991 Proc. A.S.I.L. 401, 409-10 .

Chapter XXX

Panel Discussion: Criminal Responsibilities for Environmental Damage

Dr. Anne Hollick, Joint Military Intelligence College: Welcome to the beginning session of the day. Our subject is criminal responsibility for environmental damage. We are now, once again, dealing with what we called at the outset "a subset" of this broader issue. Our panelists have been looking at the effectiveness of the international legal framework to hold individuals criminally accountable for destruction of the environment. We are very, very fortunate, indeed, in the quality of the panel. Although, unlike the last panel, their names do not evoke environmental sentiments, I am sure that they all have qualities that we would esteem. I know for example that one of them has postponed a sailing trip to be with us, and I think that deserves some measure of appreciation. Professor Michael Bothe as you know is a Professor of Public and International Law at the Johann Wolfgang Goethe University in Frankfort. Dr. Gerard Tanja is the General Director of the T.M.C. Asser Institute for International Law in The Hague. Dr. Tanja has served as a Legal Advisor to the Netherlands Government in the Ministry of Foreign Affairs. Howard Levie is now Professor Emeritus of Law of Saint Louis University School of Law. I am not going to take further time in the interest of brevity, and in part, because I want to make sure we have ample time for questions. Professor Bothe is our first speaker. Professor Bothe.

Professor Michael Bothe, Johann Wolfgang Goethe University, Frankfurt, Germany: Thank you very much. I am, of course, grateful for this invitation, and I think the debate so far has proven that it is a most interesting and most timely meeting. I am all the more grateful that I was assigned a subject which appears from at least some of the discussions, to be central to our inquiry. We have heard so often that what matters is not new law; it is the enforcement of existing law, and criminal law is said to be a crucial point in enforcing existing law. It is gratifying, indeed, to be thus placed at the center of what seems to matter. However, it is not only with an excess of modesty that I would like to question that basic assumption that criminal law is really that central in the field of the law that we are discussing here.

I would, therefore, start with some general reflections on the role of criminal law in enforcing respect for the laws of war. If we regarded international practice during the last few decades, this is exceedingly scarce. After the war crimes tribunals which we established following the Second World War, little has

occurred to affix criminal responsibility for violations of international law. But it is not only this scarcity of practice which makes us wonder about the importance of criminal law in enforcing the laws of war.

The war criminal is a particular kind of perpetrator. The war criminal is not like the clandestine thief. The war criminal is part of a system, at least the system as he, or one must add in some cases, she, perceives to be the system or the particular subsystem he or she is working in. That is one of the reasons why the whole mechanism of deterrence is different in the field of war crimes than it is in other fields of criminal war. The deterrent effect of criminal law is also reduced by the fact that there are obvious inhibitions to actual prosecution and punishment. During the conflict, the State of the criminal will he inhibited from actions for a variety of reasons—being that the system as a whole is criminal, which happens, being that they do not want to offend the armed forces who are doing their job, and so on. The other party to the conflict always has the risk that if it imposes criminal punishment on those it captures it will cause a kind of escalation of the conflict because there may be counterclaims that this is illegal and this may lead to a degeneration of the conflict.

So we have cases where, indeed, there were claims that certain prisoners were war criminals, but there were no prosecutions. After the fact, after the end of the conflict, there is a general tendency to make peace, to make "real" peace. It is often thought to be somehow inconvenient to prosecute war criminals. Third States, if we take the law of the Geneva Conventions strictly, should prosecute war criminals once they get hold of the perpetrator, but that too happens rather rarely. That being said, the only defendant who is so far before the International Tribunal for the former-Yugoslavia, is somebody who was first arrested in Germany, because the German Government took that obligation which exists under the Geneva Conventions seriously, and would have prosecuted that particular person had it not changed the German law in order to allow a transfer of the person to these nice prisons which exist close to the Asser Institute in The Hague. The International Tribunal may, of course, open up a whole new era of international criminal law, and we might rethink what I just said in terms of the practical relevance of international criminal law. That remains to be seen. One defendant does not really make a success story.

There is, however, a very basic phenomenon, the significance of which cannot be denied. Criminal law reflects basic value decisions of a given society. This factor accounts for the importance of the grave breach provisions of the Geneva Conventions and this is a phenomenon we can also observe in national law. For this reason, changes in value perceptions of societies are often reflected as changes in criminal law. That works both ways. The divergent views on sexual practices and abortion are obvious examples. Decriminalization or recriminalization of certain conduct is a consequence of changing value perceptions in society.

This has been true in relation to the protection of the environment. We have seen a wave of criminal legislation to protect the environment in many States in the 1970's and early 1980's. Now in order to reflect these changing perceptions/value judgments in society, there is one requirement for criminal law—it must be clear. It must be clearly reflected in the wording of the law. A mere reinterpretation of existing criminal law in order to somehow include protection of the environment does not serve that particular purpose.

Now let me briefly review with you some of the problems of protecting environmental concerns by criminal law. We have to distinguish two different kinds of criminal law provisions. First, we have the provisions of the Geneva Conventions which require States to prosecute and to punish, but require national implementation legislation. These are the grave breach provisions. As a matter of principle, these norms presuppose and require the existence of national criminal law to serve as an immediate basis for the criminal liability of the individual perpetrator. From these norms, we have to distinguish international criminal law *stricto sensu*, where the criminal liability arises directly out of the international law. A clear case of that type which is so far generally recognized is aggression. As an example of the first type of norms, those international law norms which oblige States to prosecute and to punish, we have, as I have noted, the Geneva Conventions' grave breach provisions, in particular in Geneva Convention IV, on Protection of the Civilian Population, the provision on wanton destruction of property that has already been mentioned. Protocol I Additional to the Geneva Conventions of 1949 is very specific that even where it relates to objects, it is damage to persons which makes the particular violation a grave breach. The only exception is that of cultural property, which can only be explained on the basis of the dynamics of the negotiations at that particular point in Geneva.

The general thrust of these provisions is quite clear; they relate to persons. Thus the only point of departure we have really for the protection of general environmental concerns is the grave breach provision in the Fourth Convention. The Iraqi case is quite telling in this respect. What is punishable under that provision is the destruction of the oil wells because that constitutes destruction of property. But the environmental damage is not the destruction of the wells; the wells are not the environment. The environmental damage is the consequence of that destruction. Now whether this consequence of the destruction of property is really covered by that particular provision of the Fourth Convention is somewhat doubtful, to say the least. One could argue that in a criminal case, but the defense attorney would also have a good case. If we want to do more for the protection of the environment through criminal law provisions, something has to be added somewhere.

My second category of norms is criminal liability directly based on international law, like aggression. There we have two examples which can be

discussed. The first is Article 19 of the draft Articles on State Responsibility as elaborated by the International Law Commission, the so-called international crime. The second is Article 26 of the draft Code of Offenses Against the Peace and Security of Mankind, also elaborated by the International Law Commission. Professor Leslie Green has already given some comments on the latter. Whether Article 19 of the State Responsibility Articles is really meant to constitute a criminal law provision is highly doubtful. Whether either of these provisions constitute *lex lata* and are meant to reflect existing customary law is also highly doubtful. Thus, if criminal liability based on this type of norm is to be pursued, something else has to be done—there has to be some development.

My last point is the possibility of the right of States to use their own environmental law to punish perpetrators. This is a theoretical possibility because if there is a violation of international law, the States are, to a certain extent at least, free to use their national procedures to enforce that international law. They are free to use the means at their disposal, and their own criminal law may be such a means. If you examine the details of national criminal law relating to the protection of the environment, however, you will encounter difficulties because these national criminal provisions are, in one way or the other, related to national administrative law. For example, those who pollute in excess of a license granted are punishable. This is a typical case. But, it is not the kind of violation we have in mind in case of an international or non-international armed conflict. So, these norms may be used but, again, the defense counsel will also have a good case.

In conclusion, my review of the possibilities of enforcing the protection of the environment in times of armed conflict through criminal law is somewhat skeptical. I regret that, and this is why I come back to something which I have said in other contexts, including Ottawa. Something should be done for the development of international law for the protection of the environment in times of armed conflict. Thank you.

Dr. Hollick: Thank you Professor Bothe. Our next speaker will be Dr. Tanja.

Dr. Gerard J. Tanja, T. M. C. Asser Institute, The Hague, The Netherlands: Thank you Anne. Before presenting my paper I would like to point out that as the Director of the Asser Institute, I know what it means to organize a conference as perfectly as it has been done here. One point of correction: the Asser Institute is not in Amsterdam. Why is it not in Amsterdam? It is not in Amsterdam because Professor Asser, the Nobel Prize Winner, was fired at that University. Why was he fired? He was fired because he was too much in The Hague. Why was he in The Hague? Because he was involved in the preparation of the Hague Conferences which led to the 'Hague Law' which we are now discussing.

As we have witnessed during this Symposium, the issue of regulating the protection of the environment *per se* in times of armed conflict and other military operations has attracted much scholarly and governmental attention, although as Professor Roberts has pointed out this morning, it is actually a very classic issue in the laws of war. It seems to me that most of this scholarly attention and governmental discussion, so far, has concentrated on issues like, *inter alia*, the general legal aspects of the regime applicable to the protection of the environment in times of armed conflict and questions of whether this regime provides adequate protection for the environment as such. Discussion has also focused on issues of neutrality law, and the continued application and validity of rules of peacetime international and environmental law during armed conflict have also been touched upon. Relatively little interest, as Dr. Bothe has already pointed out, has been shown in the issue of the individual criminal responsibility for wanton destruction and damage to the environment: a subset of the debate on the adequacy of current law to protect the environment during international armed conflict.

Raising the issue of individual responsibility means, of course, discussing enforcement measures and mechanisms under international humanitarian law which, in turn, will raise delicate questions not only of international criminal law, but also national penal law systems.

Before turning to the issue as such, I will make some preliminary observations which in my view have to be kept in mind. First, I think we have to acknowledge that the topic of individual accountability for serious violations of international and humanitarian law in general, has attracted much attention in recent times as a consequence of Security Council Resolutions with respect to Bosnia—one might say after being ignored in State practice for some fifty years! Security Council Resolutions 764, 771, 780, 808, and of course, 827 of 25 May 1993, touch on these issues. In this respect, I found it interesting to note that in Security Council Resolutions 764 and 780, the Council speaks of persons who 'commit, or order the commission of grave breaches of the Conventions' who will be held individually responsible in respect for such crimes, whereas in later resolutions on Bosnia the Council apparently prefers a less restrictive approach and refers to both grave breaches of the 1949 Geneva Conventions and 'other serious violations of international humanitarian law' for which persons may be held responsible. That same terminology appears in the general provisions of Article 1 of the Statute of the War Crimes Tribunal for the former-Yugoslavia and, more specifically, in Articles 6 and 7 of that Statute which deal with the personal jurisdiction of the Tribunal and individual criminal responsibility. From those Articles and the accompanying Secretary General's Report, it becomes clear that the scope of the principle of individual criminal responsibility extends to persons who have planned, instigated, ordered, committed, or otherwise aided in the planning,

preparation, or execution of a crime as is set forth in Articles 2 through 5 of the Statute.

Hence, and I recognized that much can be said about the appropriateness of this point of departure for a discussion on the criminal accountability of individuals responsible for wanton destruction and damage to the environment, I do think it is justified to consider both the formulation of Article 7 on individual criminal responsibility and the subject matter jurisdiction as determined by Articles 2 to 5 of the Statute of the War Crimes Tribunal, as a correct reflection of the law as it stands today. Those provisions provide a conceptual framework within which we can address the issue of the efficacy of individual accountability for wanton destruction and damage to the environment.

My second preliminary observation is related to the fact that at a conventional and at a customary level, the rules which lay down a prohibition on inflicting unnecessary harm on the environment in times of armed conflict, the rules which are applicable, are neither easily comprehensible, nor very clear. Therefore, given this ambiguity and obscurity, there seems to be a need for further development of the law towards a more coherent set of rules protecting the environment as such. At the same time, however, I am of the opinion that we should not 'rush to legislate.'

I do consider Articles 35 and 55 of Additional Protocol I and the provisions of the ENMOD Convention as a nucleus of a body of applicable rules "which affect the protection of the environment as such." Those rules, however, are in need of further development. One of my concerns was, and still is, that despite all kinds of arguments brought forward by respected and experienced international scholars, most of the relevant provisions of Hague and Geneva Law were elaborated and developed at a time when the notion of the protection of the environment *per se* both in times of peace and in war was virtually absent; we should not forget that doctrine does not make law! Furthermore, the relevant provisions of Additional Protocol I still cannot be considered as customary international law in this respect. My argument is, therefore, that if the substantive provisions of existing law are already susceptible to different interpretations, what can you expect from international criminal law or national penal law enforcement?

A third preliminary observation I would like to make in relation to the legal conceptual framework, has to do with the far from perfect enforcement mechanisms of international humanitarian law in armed conflict, which are available to us through the international community. Growing reliance on penal enforcement mechanisms in the Geneva Conventions and Additional Protocol I in the absence of any specific provision on individual criminal responsibility in the Hague Conventions of 1899 and 1907, is most probably related to what one may describe as the relative failure of other implementation mechanisms available in humanitarian law at a public law level. Failures include a lack of State

responsibility, further legal restrictions on the use of reprisals since 1977, and the rather archaic and non-functioning system of Protecting Powers. Enforcement of international humanitarian law through national penal law is, of course, necessary and required, but we have to keep in mind the way in which the Geneva Conventions and Additional Protocol I have incorporated such penal law enforcement mechanisms and recognize the rather limited role in practice such mechanisms can play in international armed conflicts. In this respect, the recently renewed efforts of the International Law Commission to draft a Statute for the International Criminal Court, and the discussions in the Working Group of the Sixth Committee of the U.N. to establish such a court may, in the future, have positive effects on the enforcement of international humanitarian law at an international level. At the same time, one may argue that the Rwanda Tribunal and the Yugoslav Tribunal can, indeed, also contribute to the efficacy of international criminal enforcement. Those courts are, however, of an *ad hoc* nature.

I will not, because of the time restrictions, touch upon the applicability of, or the possibility to apply, such mechanisms in non-international armed conflicts, nor will I touch upon the issue of environmental damage resulting from military operations other than war (MOOTW).

With respect to the issue of individual criminal responsibility for wanton destruction of the environment, let us first turn to Hague law. As I have indicated, the conventions which belong to Hague law do not contain provisions which provide for individual criminal responsibility for violations of any of their rules. The London Agreement and the Charter of the Military Tribunal did, of course, explicitly affirm individual responsibility. Article 6(b) of the Charter referred to plunder of public and private property, wanton destruction of cities, towns, or villages or devastation not justified by military necessity. This was later repeated in General Assembly Resolution 95. I therefore do not want to say that pre-1949 law rejected individual criminal responsibility, but at the same time, we have to be realistic and acknowledge that the Nuremberg episode was a very special, an *ad hoc* arrangement and offers little guidance for our topic.

The law commonly described as Geneva law, developed a more advanced enforcement system referring to penal law sanction mechanisms. All four Conventions contain a specific provision on the "Repression of Abuses and Infractions of the Conventions." These Articles oblige High Contracting Parties to enact legislation to provide for effective penal sanctions for persons committing or ordering any of the grave breaches which are defined in the respective Conventions. A similar provision can also be found in Article 28 of the Hague Convention of 1954 on the Protection of Cultural Property in the Event of Armed Conflict. Certain provisions of this Convention seem to have a certain relevance for our topic.

Secondly, those Articles oblige High Contracting Parties to search for persons alleged to have committed or ordered such grave breaches and to bring them before their own courts or to hand them over to another High Contracting Party.

Thirdly, High Contracting Parties have to take measures which are necessary to suppress violations of the Conventions not falling into the category of the grave breaches. In order to qualify as a grave breach, conduct must be directed at so-called 'protected objects,' and this is an important restriction. The Conventions attach this status only to objects which are in the hands of the adversary. Convention IV speaks, in this respect, about persons and objects which shall be "respected and protected." Only thus qualified does an object fall under the category of grave breaches.

The second step is to determine whether the formulation of grave breaches under the 1949 Conventions can serve as a guide. I think that such prospects are rather bleak. Under the Conventions, the "extensive destruction and appropriation of property not justified by military necessity and carried out unlawfully and wantonly" is, indeed, a grave breach, and of course, that wording has been inspired by the Nuremberg Charter.

It is not immediately clear what provisions come to mind, but Article 53 of Convention IV, which is of a rather general nature, seems to qualify. However, the qualifications of Article 147, to which I just referred—"extensive," "unlawfully" and "wantonly,"—do not appear in Article 53. In other words, only if those requirements have been fulfilled is there a possibility to bring individuals to court under the grave breaches provision. Violations of Article 53, as such, which are not grave, may be addressed by resorting to penal law, but States may, at the same time, have a preference for discipline measures. States are not under an obligation to implement this provision by means of legislative measures in their national penal systems.

In light of the strict requirements applicable to criminal law with respect to evidence gathering requirements relating to due process, the absence of ecological awareness in the periods in which the Conventions were developed, and the consequential imperfections in national implementation legislation, it seems to me rather unlikely that an individual will be convicted or extradited on the basis of extensive, unlawful and wanton destruction of the environment *per se* under national penal law which sanctions either Article 53 or Article 147 or any of the other relevant grave breaches provisions in the Geneva Conventions. It seems unlikely that charges of serious environmental damage resulting from violations of the Geneva Conventions will be successful on the basis of wanton and excessive destruction of the environment *per se*.

Does Additional Protocol I of 1977 add anything to this imperfect system? I do not think so. The first step we have to take is to determine whether, for the purposes of this presentation, Additional Protocol I adds something to the Geneva

Conventions when it comes to penal enforcement mechanisms. Basically, the methodology followed in Article 85 is identical to the approach found in the Geneva Conventions. Article 85, Paragraphs 3(b) and (c), refers to conduct such as—"launching an indiscriminate attack"—and relates to damage to civilian objects which, when committed willfully and in violation of the Protocol, may qualify as a grave breach provided certain specific consequences take place and that such conduct causes death or serious injury to body or health. There is a reference in Article 85 to Article 57, Paragraph 2, which speaks of "excessive" damage "in relation to the concrete and direct military advantage anticipated" by an attack. One may argue, therefore, that the responsibility rests, in this respect, with the commanding officer ordering the attack or his superior when determining the "objects" to be attacked. Again, despite the fact that such conduct may have serious environmental consequences and may result in wanton destruction, it is rather questionable whether charges will be successful under penal law systems when a charge is based on the willful conduct having caused excessive environmental damage to such civilian objects.

Paragraph 3(c) of Article 85 refers back to the violation of provisions of Article 56 of the Protocol: dams, dikes, and nuclear electrical generation stations. That article may be argued to constitute a *lex specialis* of the general principle to be found in Article 51. Although I am not convinced that Article 85, Paragraph 3(c) really adds something to the earlier Paragraph 3(b), one may conclude that, in theory, charges could be brought against individuals under that paragraph. There is one other paragraph which seems relevant for our purposes, within the context of Additional Protocol I. That is Paragraph 4(d) of Article 85 which relates to "historic monuments, works of art, or places of worship which constitute the cultural or spiritual heritage of peoples." Paragraphs 3(b)—"non-defended localities" and "demilitarized zones"—and 4(d)—"cultural objects"—are the only instances in Additional Protocol I where an attack directed against objects may qualify as a grave breach and the norms violated are articulated in Articles 59, 60, and 53, respectively. The difference being, however, that Article 85, Paragraph 4 does not mention the requirement that there be human victims. Article 85, Paragraph (4), however, formulates at least four additional requirements which must be fulfilled in order for the violation to qualify as a grave breach: the objects must be clearly recognizable, must have special protection by means of a special arrangement, should not be used in support of the military effort, and should not be located in the immediate proximity of military objectives. It seems to me that the way in which this provision is drafted raises many interpretative issues and questions which fall outside the scope of this presentation, but I sincerely doubt whether the provision adds much to the related provision of Article 147 of Geneva Convention IV. In conclusion, the ambiguity and interpretive issues will make a

successful charge based on what has been labeled "ecocide" or "environmental crime" very, very doubtful under national penal law systems. Thank you.

Dr. Hollick: Thank you Dr. Tanja. We will now hear from our distinguished commentator, Professor Howard Levie.

Professor Howard S. Levie, Naval War College: Thank you Anne and thank you Professor Grunawalt for inviting me to come this great distance to attend this Symposium. (Laughter.) I can assure Professor Tanja that if there is a vote on the question of keeping the T.M.C. Asser Institute in The Hague rather than moving it to Amsterdam, he has one vote in his favor right here.

I am designated in the program as a Commentator, and I propose to commentate solely. I am not going to present any of my own ideas except to comment on the two speakers and one preliminary paragraph. And that paragraph is to point out to you that in Volume Two of Lauterpacht's *Oppenheims International Law*, published in 1952, you will not find the words "environmental" or "ecology" in the index. The same thing applies to Schwarzenberger's book entitled *International Laws As Applied by Courts and Tribunals*, which was published in the 1960's and which does not contain either of those words in its index, which gives you some idea of the progress we have made in the environmental area in the last two or three decades.

I have only one problem with Professor Bothe's presentation. He questions whether there is a duty imposed on States, and I quote, "to punish violations below the level of grave breaches." The third paragraph of common Articles 49/50/129/146 of the four Geneva Conventions of 1949 obligate Parties to suppress all of the violations of those instruments, and I quote, "other than grave breaches." Similarly, Article 85(1) of the 1977 Additional Protocol I refers to, and again I quote, "the suppression of breaches and grave breaches" of that Protocol. So I have no problem with the fact that breaches other than grave breaches are punishable under the four Geneva Conventions and under Additional Protocol I.

I have no difficulty either, with Dr. Tanja's initial conclusion that we are fully justified in considering that present day international law, as most recently set forth in the two Statutes adopted by the Security Council establishing the International Tribunal for Yugoslavia and the International Tribunal for Rwanda, indicates that there is individual criminal responsibility for violations of international humanitarian conventions.

However, I do not have the difficulty that Dr. Tanja appears to have in operating under present customary and international law. It will be recalled that as long ago as shortly after World War II, German General Rendulic was tried for devastation in the Norwegian Province of Finnmark in his retreat from Finland to Western Norway. General Rendulic understood that the Russians were right behind him, and he ordered complete devastation so that there would be nothing to assist the

Russians in their pursuit of him. He was wrong. The Russians were not in immediate pursuit of him, they were several days behind him and there was plenty of time for him to escape with his troops. Nevertheless, complete devastation was committed. The bridges were destroyed, crops were destroyed, waters were diverted. Everything that could be done to hamper the Russians' advance was done. Now this was all done under a misapprehension. When he was tried, he was charged with unnecessary devastation, unnecessary destruction. He was acquitted. But he was acquitted not because that was not a crime, but because he was not wanton; he did not do it unlawfully. He believed that military necessity required him to do that, and the court found that even though military necessity did not require him to do it, there was justification for his action. The court indicated very clearly in its three or four pages of discussion of that matter, that had he acted wantonly, had he known that the Russians were not right behind him, he would not have been justified in that destruction and he would have been guilty of a war crime.

I must also agree with Dr. Tanja that, regrettably, there is nothing in international law protecting the environment from conflicts which are not international, that is, not until Additional Protocol II. International diplomatic conferences did not concern themselves with such conflicts, considering that they were within the ambit of national law and not international law, except in a few limited areas such as noninterference in a rebellion and that sort of thing, but not with respect to matters we are discussing here. Unfortunately, I can not agree with his conclusion that neither the 1907 Hague Convention, nor the London Charter of the International Military Tribunal which sat in Nuremberg, contribute to the solution of the problem of the protection of the environment in time of war or other military operations. Even though there was no specific provision in the Hague Regulations making this a crime, the trials after World War I and after World War II, conducted by many different nations, involved charges of crimes which were, in effect, violations of those Regulations. As for the London Charter, it was drafted by the four major countries, the victors—the Soviet Union, Great Britain, France, and the United States—and it was subsequently adhered to by 19 other nations. That meant 23 nations adopted the Charter; at that time there were probably about 51 nations. So you have a very large percentage of the then-world community which approved what was done at London and what was contained in the London Charter of the International Military Tribunal.

Moreover, as you all know, the General Assembly adopted and approved the principles and judgments of the Nuremberg Tribunal. So as far as I am concerned, the Nuremberg Tribunal was not an "episode," as Dr. Tanja identifies it. It was more than a "special, *ad hoc* arrangement." The fact that its basic provisions can be found in the Statutes of the two International Tribunals established in recent years is a matter of lasting importance.

I am afraid that I must also disagree with Dr. Tanja with respect to his rather shabby treatment of Article 147 of the 1949 Fourth Geneva Convention. Each grave breach listed is an offense in and of itself and that is true of the grave breach "extensive destruction and appropriation of property not justified by military necessity and carried out unlawfully and wantonly." In effect, that provision indicates that not every destruction of property mentioned in Article 53 of the Convention is a grave breach thereof. There may be unintended destruction, there may be minor destruction, and there may be excusable extensive destruction, such as in the case of General Rendulic.

Moreover, as Article 14(3) of the Convention indicates, there will be violations of the Convention which are not grave breaches but which would still be offenses that the State has a duty to suppress. Unlawful and wanton destruction of property not obtaining the status of extensive destruction might be such an offense. It is true that unjustifiable destruction of property might not be charged as an offense against the environment as such. It was not done in General Rendulics' case, but what difference does that make? He would have been found guilty if he had not had the excuse of his mistaken belief. The person who is guilty of extensive destruction of property not justified by military necessity and carried out unlawfully and wantonly, which destruction adversely effects the environment, will be punished for his offense whatever the specific charge may be. The word "environment" may not appear in the charge, but that makes no difference. The perpetrator is still going to be convicted if the facts establish guilt.

I heartily agree with Dr. Tanja that there are some serious flaws in the extradition provisions of both the 1949 Geneva Conventions and the 1977 Additional Protocol I. Unfortunately, that is not unique to those five treaties.

As has been pointed out, the first international convention specifically directed towards the protection of the environment in time of hostilities was the so-called ENMOD Convention. ENMOD was followed shortly thereafter by Articles 35 and 55 of the 1977 Additional Protocol I and, as has been mentioned—but I do not think there has been enough emphasis placed upon it—by Article 2(4) of Protocol III to the 1980 Conventional Weapons Convention. The latter prohibits the use of incendiary weapons against "forests or other plant cover," and may certainly be considered to be directed toward the protection of the environment. One has but to read the presentation made by Professor Szasz at the 1991 Annual Meeting of the American Society of International Law to become aware of the fact that while protecting the environment, particularly from the havoc of war, has become a matter of major importance to many international organizations, actual progress in this regard has been minimal. I think that after hearing him this morning, he may have changed his mind since 1991. The Gulf War included numerous acts by Iraq aimed directly at the environment, many of which had no military

significance, but any suggestion that the person or persons responsible for those acts should suffer punishment, died on the vine.

Let me just close by quoting a statement that was also made at the 1991 Annual Meeting of the ASIL and one which I heartily endorse. The speaker said this: "I am somewhat inclined to think that now it may be time for us to seriously consider the possibility of establishing an appropriate international mechanism to cope with such situations as environmental terrorism or aggression." Thank you.

Dr. Hollick: Thank you Professor Levie.

Well, the issue has been set forth by our panelists. We have a little time for questions and I understand that we will be given a little flexibility on the ending point. Professor Szasz, you have the first question or comment.

Professor Paul C. Szasz: Thank you, I do not really wish to answer Professor Levie's charge. Still, the situation is that some progress has been made but that progress, really, has not resulted in good, manifest, binding law. It was true then and unfortunately it is still true now. The binding law is still the 1907 Hague Conventions, on which we can condemn what happened in Iraq. What I would like to do is refer to some other provisions of international criminal law. First of all; two provisions that were considered by the International Law Commission. One, under the topic of State responsibility, had to do with State crimes and there it was suggested by the rapporteur to characterize as an international crime, a serious breach of an international obligation of essential importance for the safeguarding and preservation of the human environment, such as those prohibiting massive pollution of the atmosphere or of the seas. I understand that that rapporteur's proposal is no longer under active consideration, but it does indicate that there is an effort to criminalize, on the State level, environmental crimes.

Under the draft Code of Crimes Against the Peace and Security of Mankind which, of course, deals with individual criminal responsibility, there was under consideration Article 22 on exceptionally serious war crimes. For the purpose of this draft Code, an "exceptionally serious war crime" is an exceptionally serious violation of the principles of the rules of international law, including employing methods or means of warfare which are intended or may be expected to cause widespread, long-term and severe damage to the natural environment—obviously picking up the language of Additional Protocol I. Also in the draft Code is Article 26 pertaining to willful and severe damage to the environment. An individual who willfully causes or orders the causing of widespread, long-term, and severe damage to the natural environment, is subject to prosecution and appropriate punishment. Again, that is in the draft Code of Crimes which would accompany any statute of international criminal courts set up by the General Assembly.

As far as not including environmental provisions in the statutes of the two criminal courts that have been set up by the Security Council—Yugoslavia and Rwanda—that reflects the fact that in respect of those two conflicts, environmental crimes do not have particular prominence compared to others. You can tell that these tribunals are *ad hoc*, adjusted to the situation. If you compare the crimes under the Yugoslavia Tribunal and with those under the Rwanda Tribunal, you will find that they are not identical. So it indicates that the Security Council tailors each of those to the crimes it sees having been committed.

Now I would like to refer to just one more provision which is of some interest in this connection. At the Eighth United Nations Congress on Prevention of Crime and Treatment of Offenders—the 1990 Havana Conference—a resolution was adopted pertaining to the role of criminal law in the protection of nature and the environment. It called upon States to enact and to enforce national criminal laws designed to protect nature and the environment. To the extent that this would be generally followed, it would start creating a general principle of law which would, by that fact, rise to the level of an international law under Article 31(c) of the Statute of the International Court of Justice. So there are a number of movements toward criminalizing environmental misconduct, aside from the ones that exist already in the Geneva Conventions, the Additional Protocols and the other instruments referred to. Thank you.

Dr. Hollick: Thank you. You have obviously stimulated our panelists. At this point I will invite Dr. Tanja, if he wishes, to respond to Professor Szasz' comments.

Dr. Tanja: We could make it a joint response. Well, the only observation I have with respect to Professor Szasz' remarks relates to what he apparently sees as a relationship between the draft Code which he referred to, and the efforts toward the establishment of a permanent international criminal court. I am not quite sure whether those two efforts, at the international scene, are as closely related as you think they are. It seems to me legally quite dangerous if you base your conclusions on the fact that the two documents should be seen together.

Professor Levie: With regard to the I.L.C. Statute for an International Criminal Court, you will note that the only reference to any convention which deals, even remotely, with the environment are the five conventions talked about repeatedly here; the four 1949 Geneva Conventions and the 1977 Additional Protocol I. The 1954 Hague Convention, which should have been included, is not listed among the treaties that are to be the subject of criminal prosecutions before that court.

Secondly, with regard to the two international tribunals that have been established, the one for Yugoslavia includes crimes listed in Article 6, Paragraphs

(a), (b) and (c) from the London Charter of 1945; that is "wars of aggression," "crimes against peace," "conventional crimes," and "crimes against humanity." The second one, Rwanda, does not, of course, contain crimes against peace because it is a civil war. However, it does contain, almost identically, Article 6, Paragraphs (b) and (c) of the London Charter.

Professor Bothe: I have just a few remarks concerning the duty to punish violations below the level of grave breaches. The relevant provision of Additional Protocol I states: "High Contracting Parties and the Parties to the conflict shall repress grave breaches"—that refers back to the duty to prosecute and punish—"and take measures necessary to suppress all other breaches," which gives much more freedom to the States as to how to do that. It does not necessarily require criminal prosecution.

Regarding the question of the definition of "international crime" and the possible marriage between the draft Code and the Statute of a Permanent Court of Criminal Justice. In the draft Statute, elaborated by the International Law Commission, an international crime is "a norm of international law accepted and recognized by the international community of States as a whole as being of such a fundamental character that its violation gives rise to criminal responsibility of individuals."

Now this is a very open-ended formula which may attract value judgments expressed in other documents. In this respect, the trends which are rightly observed by Professor Szasz may become relevant, and may finally lead to the point where some violations of international environmental law would be included in this provision. The query I have is whether we have already reached that stage.

Dr. Hans-Peter Gasser, Senior Legal Advisor, International Committee of the Red Cross: May I say just one word to what both of you have mentioned, namely the absence, the regretful absence, of actual prosecutions on the domestic level. I think one of the reasons, quite simply, is that many States are not ready, are not prepared to do this. They have not enacted the necessary domestic laws in order to make it clear what is the crime that can be prosecuted before a domestic court and also have not clarified the jurisdictional procedures and so on. We at the ICRC, of course, have seen this and regretted it. Just recently, we have started to strengthen our advisory service which is to advise national authorities on enacting the necessary penal legislation in order to implement these obligations to prosecute or to extradite.

My second comment is that after the end of the hostilities in the Gulf War, the Coalition very quickly repatriated the Iraqi POWs and sent them home. That had an effect, amongst others, that none of those POWs were detained for possible prosecution for war crimes. This despite the fact, of course, that much emphasis

has been put on these serious crimes which were committed by Iraqi forces. This, too, has been regretted, and I wonder whether it would not have been necessary to explain in some way why this has happened? Why the POWs have been sent home so fast and they have not been kept a longer time to allow the necessary inquiries and to individualize possible criminals? What was this urgency to repatriate these POWs as quickly as possible? There are humanitarian considerations that came in, which was probably the case here; other interests acting as an opposite force to the interest of justice. Therefore, we have to recognize that there may be different interests which have to be respected in such situations.

Dr. Anne Hollick: Perhaps we should start collecting these questions and then turn them over to the panel. Our next question is from Professor Meron.

Professor Theodor Meron, New York University: Thank you. First I would like to follow-up on a comment made by Paul Szasz. It seems to me that the Security Council has carefully calibrated the offenses listed in the Statutes for Yugoslavia and Rwanda bearing in mind the character of the conflict. In the case of Yugoslavia, because it considered the conflict, obviously, to be one of an international character, it listed the Hague law, grave breaches, in addition to genocide and crimes against humanity. In the case of the Statute for Rwanda, it listed common Article 3, Additional Protocol II, crimes against humanity and genocide, without any reference to either the Hague law or the grave breaches. But I would like, if I may, to refer to the controversy between Professors Bothe and Levie regarding the scope of obligations of States with regard to grave breaches, because I believe it is a very fundamental question. With regard to grave breaches, the situation, I believe, is simple. Third States—all States—have the duty either to prosecute or to extradite. In a way, you can regard the grave breaches provisions of the Geneva Conventions as almost a treaty dealing with judicial cooperation among States. Now, I turn to those breaches which do not rise to the level of grave breaches, but I am not speaking of all breaches of the Geneva Conventions, only those that are significant violations. For example, common Article 3 or Article 27. I am not speaking of technical or administrative matters. It seems to me that with regard to those matters, that is the bulk of the provisions of the Geneva Conventions, third States have the right to punish, but they are not under the duty to punish. An example from recent practice, suggesting that this is not only a theoretical right but a practical assertion of jurisdiction, is a recent 1993 law which was adopted by the Belgian Parliament. Under that law, in 1995, Belgian prosecutors requested that international arrest warrants be issued against a person in Rwanda accused of violations of common Article 3 and Additional Protocol II. We are not talking now of the grave breaches, what we have is an

assertion of universal jurisdiction with regard to things which are lower breaches.

Now, having said that, I would like to express a note of caution. Environment and everything that concerns it, is basically a new concept. And if we can learn anything from the Nuremberg proceedings, and indeed from the arguments made by the defense before the Criminal Tribunal at the Hague during the last few weeks, it is the difficulty of bringing criminal charges for "new" crimes. I had the honor of assisting the prosecution in that case. I saw the extraordinary care placed by both the defense and the prosecution and, of course, by the judges, on the concept of customary law in order to deal persuasively with *ex post facto* challenge. I would think that third States and international tribunals, criminal courts to be established or those that exist, will be extremely careful about criminalizing anything pertaining to violation of the environment because they will want to be absolutely certain that we are talking about solid customary law. Thank you.

Professor Bernard H. Oxman, University of Miami: In its application for provisional measures against Great Britain and the United States in connection with the extradition of individuals charged with responsibility for the Pan Am Flight 103 disaster, Libya raised a question which, in fact, challenges many assumptions about the structure of the international law of jurisdiction. Libya raised the question of whether the defendants could receive a fair trial in Great Britain. It seems to me that with the development of the international law of human rights—not just the international law of war crimes—we have to accept the premise that everyone is entitled to a fair trial. I was wondering if one of the panelists could comment on the reverse side of the preoccupation of the panel and that is whether these authorizations or insistences on prosecution, particularly by States where emotions may be running very high against the defendant, are consistent with human rights notions of a fair trial?

Dr. Hollick: We will take one last question and then let the panelists have their say.

Professor Christopher Greenwood, Cambridge University: Thank you. May I just briefly take issue with what Hans-Peter Gasser said about the repatriation of prisoners of war and the investigation of war crimes. There is a very clear duty under the Prisoners of War Convention to repatriate prisoners of war without delay on the cessation of hostilities. The International Committee has been one of the foremost advocates of the implementation of that provision. You really cannot have it both ways, and say that something like 85,000 prisoners of war should be detained in Saudi Arabia for possibly several years while it is investigated whether

any of them are liable for prosecution for crimes against the environment. It is just not practically possible to do that sort of thing and reconcile it with other duties under the Convention.

Dr. Hollick: Thank you. It is now time for our panelists to have the final word.

Professor Bothe: Thank you Anne. First the point raised by Hans-Peter Gasser, relating to the non-existence of adequate national legislation—of course, there I agree. What we find if we look more closely into national legislation quite often is that the claim that a particular State does not have to do anything about its legislation because it covers, rather automatically, all the grave breaches of the Conventions, is not well founded. This, of course, does not apply to the Commonwealth Countries who have their own way of transforming the Geneva Conventions, and the Protocols Additional to them, to the national law. Just a reference to the provisions of the Convention and Protocol, as the case may be, in the implementation will technically cover any grave breach. But there are a number of countries that just claim that they do not need any implementing legislation because these things are covered in any event by national criminal law, and it is there that doubts are appropriate whether this is really true. This, in my view, is particularly true for breaches which are below the level of grave breaches. It may well be that an effective measure can only be a criminal law provision, but this is far from being certain.

The national provisions relating to environmental protection, and I am sorry to repeat myself here, but national environmental protection provisions are not geared to the particular kind of offense against the environment which we may find in times of war.

Concerning the reverse side of the *Lockerbie Case*; the argument was not really invented by Libya, the argument was pleaded elsewhere. It was the basis of a similar argument in the decision of the European Court of Human Rights in the *Sirring Case*, where the Court said that it was illegal for the United Kingdom to extradite an accused to the United States where he might face the death penalty and would be exposed to the death row phenomenon—the death row phenomenon being considered by the Court as a form of degrading treatment and Great Britain would have contributed to that degrading treatment by extraditing the person to the United States.

This is exactly the kind of argument which is also raised by Libya. The structure of the argument is the same. I would not evaluate the argument in the same way, but the structure of the argument is the same, and it is a serious argument which has to be considered. There are, and this is a general remark, certainly some human rights limitations to which the prosecution of war criminals is subject. This applies to the International Tribunal and has a provision for that. It applies to any State.

This is very difficult. We have witnessed that in Germany there is a long practice of prosecution of war criminals in the later 1950s, the 60s, and the 70s. On the one hand, the desire to arrive at a punishment which was adequate in view of the atrocities which had been committed, and on the other hand to come to that conclusion by respecting all of the procedural guarantees required by the rule of law. These are two requirements which do not co-exist very easily. This is something I think any prosecution faces. These are crimes which are, quite often, difficult to prove. We are dealing with the individual contribution of an individual accused in a course of conduct that involves, quite often, systemic crimes. You know it happens—you know that there is ethnic cleansing, you know there is systematic rape—but was it this particular guy, at this particular place, in relation to this particular victim. Because that is what you have to prove. And you have to prove it by respecting all the rights of the accused, and there you may, as a prosecutor, have a rough time.

Dr. Tanja: There is only one comment I would like to make and that relates to an observation made by Professor Levie. According to Professor Levie, I stated that before 1949 there was not a customary principle with respect to reliance on a penal enforcement mechanisms. If I said it, it was probably because I am not a native speaker. What I did mean to say was that after 1945, you cannot deny that in international instruments on the laws of war—international humanitarian law like the Geneva Conventions and Additional Protocols—there has been put a growing emphasis and reliance on penal enforcement mechanisms. That is the only thing I wanted to state.

Professor Levie: I have two short comments. First, with regard to what Hans-Peter Gasser said, I think that the quick reparation of prisoners of war after the Gulf War was due to the Security Council Resolution which called for the repatriation of prisoners of war on both sides and that was probably motivated by the fact that we wanted to get our prisoners of war back as quickly as we could. Secondly, on that same subject, after the Korean War we held 200 alleged war criminals in a separate prisoner of war compound as we prepared to try them for war crimes. We had another compound with several hundred prisoners of war who were prepared to testify against their fellow prisoners. No trials took place because the Armistice Agreement required that all prisoners of war who desired to be repatriated should be repatriated. That is what is going to happen very frequently.

Whenever there is a cease fire or an armistice, it is likely going to include a provision for repatriation, and there are not going to be provisions regarding possible war crimes trials. I would say that that is one of the reasons why you did not have it after the Gulf War, because we were in such a hurry to get prisoners of war back and the Security Council was not going to put in its resolution on the

terms for the cease fire any provision that called for the surrender of prisoners for trial by a war crimes tribunal.

With regard to Libya, it is interesting to note that after Libya filed its notice that it was going to institute the suit, it took about six months to file its memorial. The Court allowed the United States and Great Britain almost a year to file their respective counter\memorials. They were filed on June 20th, 1995. Libya has asked for until December 15th, another six months, to file its reply. After that, the Court is probably going to agree to the United States taking another six months to answer the reply. This all looks to me like an attempt to stall, perhaps with the idea that passions will disappear, and that there will not be any necessity for the trial; that the United States and Great Britain will give up the demand for the surrender of the two Libyans and forget about the matter.

PART NINE

THE DEBATE TO ASSESS THE NEED FOR NEW INTERNATIONAL ACCORDS

Chapter XXXI

The Debate to Assess the Need for New International Accords

Dr. Hans-Peter Gasser*

New Treaty Law or Guidelines for Ensuring Compliance with Existing Legal Standards?

Before entering into a debate on the need for a new treaty, we have to assess the protection which current international law affords to the natural environment in times of armed conflict. I shall, therefore, first recall the present state of the law and review the response by military and civilian authorities to the recent development of these rules, and I shall then put forward some considerations on whether the protection of the natural environment in armed conflict is better served by a new initiative to develop the law, or by alternative and more modest means of strengthening respect for existing legal obligations.

My remarks are confined to damage to the natural environment which may occur during armed conflict, *i.e.*, situations where international humanitarian law applies, in particular the 1949 Geneva Conventions for the protection of war victims,[1] their two 1977 Additional Protocols[2] and relevant rules of international customary law.[3]

A. The Premise

Modern technology has produced weapons with an enormous potential to destroy not only legitimate targets but also the surrounding environment. While it is true that warfare inevitably and often very seriously affects the natural environment, even though it may not be targeted as such, threats to the environment have now assumed apocalyptic proportions. The dirty clouds over the blackened desert sand and the oilslick on the waters of the Persian Gulf at the close of the Gulf War of 1990/91 have brought home the message of the vulnerability of the natural environment to all those ready to recognize new dangers for mankind. Emphasizing the inevitable link between serious damage to the natural environment and development, the 1992 Rio Declaration on Environment and Development goes a step further and declares: "Warfare is inherently destructive of sustainable development."[4]

In recent years, there has been a major change of opinion on how to evaluate the impact of war on the natural environment and on the conclusions to be drawn

for the conduct of military operations. To my knowledge, damage to the environment was not much of an issue before and after the destruction of Hiroshima and Nagasaki by nuclear bombs. It started to attract attention in the debates on the involvement of U.S. forces in Vietnam and became a major concern during the two recent wars in the Persian Gulf area. The latest chapter may well have been written by the withdrawal of the Red Army from its bases in Central and Eastern Europe, a peaceful and positive event but for the indescribable military garbage and the environmental destruction left behind. Today, the potential destructive impact of military action on the natural environment can no longer be denied, either in peacetime or in war.

A great leap forward has also been made in the thinking of those responsible for advising the armed forces on the law of war. As an example let me cite some statements made in American legal and military publications. In his elaborate and sometimes biased critique of Additional Protocol I,[5] Roberts chose to oppose the new provisions on the protection of the natural environment against the effects of military operations by saying without any hesitation that oil tankers and ships carrying hazardous chemical cargoes were "important and legitimate military targets."[6] Yet only a few years later, in its Final Report on the Conduct of the Persian Gulf War, the U.S. Department of Defense spoke about "environmental terrorism" (hardly a positive statement for American ears) when commenting on the destruction of the Kuwaiti oil installations by Iraq.[7] In 1995, the Operational Law Handbook of the U.S. Army recognized that "[p]rotecting the environment has become steadily more important during the past several decades," and that "[f]ailure to comply with environmental law can jeopardize current and future operations, generate international and domestic criticism . . . "[8] In the same vein, The Commander's Handbook on the Law of Naval Operations enjoins the U.S. Navy to take environmental considerations into account.[9]

I have no doubt that similar developments have taken place in the armed forces of other countries as well. Suffice it to say that environmental concerns have found an adequate place in the new Law of War Manual issued by the German Ministry of Defence.[10]

There is yet another favorable development to be mentioned: the armed forces of many States have in recent years adopted standards for the protection of the natural environment during their peacetime activities, such as military training and maneuvers. It may well be hoped that a growing awareness of ecological considerations in normal times will strengthen the resolve to respect such standards in armed conflict as well.

A brief look will now be taken at the international legal rules which protect the natural environment in time of armed conflict. This will lead to a few more preliminary conclusions.

Ever since codification of the law of war began, general principles and rules of law have provided some legal protection for the natural environment, such as the prohibition on attacking or destroying objects which are not lawful military targets,[11] the rule of proportionality or the Martens Clause.[12] As part of the general framework of international law, they continue to provide guidance for those who have to plan, decide or execute military operations. Only the most recent round of codification of the laws of war has resulted in separate provisions to address the specific problems raised by the vulnerability of the natural environment in armed conflict. According to Articles 35 (3) and 55 of Additional Protocol I, the natural environment must be protected against "widespread, long-term and severe damage." The commentary on Additional Protocols I and II, published by the ICRC, explains in the following terms why two provisions on the same subject were deemed necessary to achieve the desired end:

> While Article 35 *(Basic rules)* broaches the problem from the point of view of methods of warfare, Article 55 concentrates on the survival of the population, so that even though the two provisions overlap to some extent . . . they do not duplicate each other.[13]

Furthermore, several other provisions of the new treaty, dealing with specific categories of persons or objects, are also relevant for limiting damage to the natural environment. One example is Article 56 of Additional Protocol I which prohibits attacks against "works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations."

With its Article 35 on methods and means of warfare, and Article 55 strengthening the protection of the natural environment for the sake of the civilian population, Additional Protocol I has now set reasonable and manageable standards. Their rather high threshold of application shows beyond any doubt that military considerations have been taken into account. The new definition of what constitutes accepteable collateral damage gives additional guidance to those who have to plan, decide or execute military operations.[14] The new law of 1977 can be respected in armed conflicts of our time, and fears of its being too restrictive for the lawful conduct of military operations are certainly unfounded. As treaty law, Additional Protocol I is today binding on 140 States,[15] *i.e.*, a clear majority among the community of nations, and thus commands a degree of international legitimacy which should lead to general observance of its standards.

Other international treaties also have an impact on the protection of the natural environment in armed conflict. The most important ones are the 1977 ENMOD Convention[16] and the 1980 Conventional Weapons Convention.[17]

Additional Protocol II, relating to non-international armed conflicts[18], has no specific rule on the protection of the natural environment in civil war. However, its provisions on the protection of objects indispensable to the survival of the

civilian population (Article 14) and on the protection of works and installations containing dangerous forces (Article 15) set standards which implicitly oblige parties to a non-international armed conflict to prevent excessive damage to the natural environment. Furthermore, obligations arising out of general (peacetime) international environmental law continue to be applicable under conditions of armed conflict, be it of an international character or not, though much remains to be done to clarify the extent to which such rules remain applicable after the outbreak of hostilities.

Having examined the status of the international rules on the protection of the natural environment in armed conflict, I should now like to outline some possible conclusions.

B. What ought to be done

1. A New International Treaty?

In terms of time, energy and resources, the cost of drafting, negotiating and adopting a new international multilateral convention is today very high indeed, whatever the issue being dealt with. There is also a risk that a new treaty will not be ratified by a significant number of States. A failed codification attempt may in the end be more harmful to the cause than leaving the law as it is.

In the wake of the 1990/91 Gulf War, a proposal has been circulated to draft a Fifth Geneva Convention specifically designed to protect the environment in time of armed conflict.[19] The author of the draft has commendably identified many issues that would arise in such an endeavor and has suggested concrete answers. His initiative has not, however, received much support. Furthermore, a recently published draft for a comprehensive "International Covenant on Environment and Development" includes a provision specifically dealing with "Military and other hostile activities."[20]

Admittedly, the international rules on the protection of the natural environment are not perfect, and the law could be improved in many respects. In particular, the protection of the environment in non-international armed conflicts should be strengthened, whilst serious damage to the natural environment should be considered as an international crime. In my view, however, there are at the present stage no compelling reasons to advocate the drafting of a new and comprehensive separate convention on the protection of the natural environment during armed conflict. Lack of compliance with existing international standards is the main problem of our time. Measures to increase compliance with the law are urgently needed.

2. Guidelines for Military Manuals and Instructions

Between 1991 and 1993, the ICRC organized three private meetings of experts to discuss possible action to strengthen respect for the natural environment in

armed conflict.[21] While identifying several gaps in the law, their principal conclusion was that, above all, compliance with the existing international rules must be assured. To achieve that goal it was suggested that guidelines be drawn up and incorporated in domestic military manuals and other instructions for members of the armed forces. It goes without saying that obligations to be respected in times of armed conflict must first and foremost be known, understood and accepted by those who actually have to behave accordingly, *i.e.*, primarily the members of the armed forces.[22]

The ICRC accepted the experts' conclusions and in particular the low priority to be given to new codification. Following their advice and on the basis of an initial draft that some of them had prepared, the ICRC had guidelines compiled. The text thereof was subsequently submitted to the United Nations for inclusion in a program under the "United Nations Decade of International Law."[23] During its 1994 session, the General Assembly adopted resolution 49/50, entitled "United Nations Decade," which invited, *inter alia*, all member States to disseminate widely the (revised) Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict and to incorporate them into their military manuals and instructions.[24] The text of the Guidelines, which is given in an appendix to this paper, has of course been sent to all member States as an official U.N. document. Together with a short introduction, the Guidelines have also been published by the American Journal of International Law.[25]

There is no need for an elaborate commentary on the Guidelines. They are self-explanatory. It is enough to point out that they do not distinguish between international and non-international armed conflicts. In line with an emerging trend, they invite governments and armed forces to respect the same standards in all circumstances of armed conflict, irrespective of its legal qualification.[26]

The ICRC firmly believes in the usefulness and the eventual success of such a "soft" approach to reinforcing respect for international obligations by members of armed forces. The Guidelines will no doubt become part of a more comprehensive project: the drafting of a new model manual on the law of war.

3. Preventive Action: Evaluating the Conformity of Weapons with International Obligations on Environmental Protection

States are under an obligation to ensure that weapons and any other means and methods of warfare they develop, acquire or adopt are compatible with their commitments under international law, including the international rules protecting the natural environment in armed conflict.[27] Such an obligation has been codified by Article 36 of Additional Protocol I. To include environmental concerns in (peacetime) evaluation procedures of weapon systems will help prevent destruction of the natural environment during wartime military operations.

4. International Responsibility of States

After the Gulf War, the U.N. Security Council established the responsibility of Iraq for the damage done, *inter alia*, to the natural environment in Kuwait, in violation of international law and in particular the U.N. Charter's prohibition of aggression against another State.[28] Article 91 of Additional Protocol I reiterates the general obligation to pay compensation for damage done in violation of international humanitarian law. The applicability of this rule to unlawful damage done to the natural environment in the course of military operations is beyond doubt.

5. Individual Criminal Responsibility

Although violation of new rules regarding the protection of the natural environment does not come within the category of "grave breaches" for which States party to the Geneva Conventions must prosecute or extradite an alleged offender, it should not be forgotten that any violation of international humanitarian law entails criminal responsibility, at least at the domestic level.[29] However, wanton and extensive destruction of property not justified by military necessity is a grave breach of the Fourth Geneva Convention; it is thus an international crime.[30] All States party to the Geneva Conventions have jurisdiction to prosecute an alleged offender. Moreover, the *ad hoc* international tribunals set up to prosecute crimes committed in the wars in the former-Yugoslavia[31] and in Rwanda[32] have the jurisdiction to try persons accused of having violated international obligations relating to the protection of the natural environment.[33] The same applies to the proposed permanent International Criminal Tribunal.[34] Criminal prosecution of serious offenders either by a domestic or an international court will unmistakably convey the message that the natural environment is a precious gift which requires respect and protection in time of armed conflict as well.

C. Final Remarks

The legal infrastructure to protect the natural environment in armed conflict is in place. The relevant rules are not ideal but they represent a workable compromise between military requirements and environmental concerns. The first step is to achieve universal acceptance of Additional Protocol I, with its specific rules on the natural environment. The main task is, however, to ensure that the existing rules are implemented and respected in all circumstances. Full respect for environmental concerns in armed conflict demands careful preparation and training of persons whose task it is to plan, decide or execute military operations, both in peacetime and in war. The proposed Guidelines pursue that goal, and seminars such as this are a valuable contribution to raising awareness of environmental values.

Notes

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1. Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field, of 12 August 1949, 6 U.S.T. 3114, 75 U.N.T.S. 31; Convention for the Amelioration of the Condition of Wounded, Sick and Shipwrecked Members of Armed Forces at Sea, of 12 August 1949, 6 U.S.T. 3217, 75 U.N.T.S. 85; Convention Relative to the Treatment of Prisoners of War, of 12 August 1949, 6 U.S.T. 3316, 75 U.N.T.S. 135; and Convention Relative to the Protection of Civilian Persons in Time of War, 12 August 1949, 6 U.S.T. 3516, 75 U.N.T.S. 287.

2. Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts (Protocol I), of 8 June 1977, 1125 U.N.T.S. 3, *reprinted in* 16 I.L.M. 1391 (1977); and Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 1125 U.N.T.S. 609, *reprinted in* 16 I.L.M. 1442 (1977).

3. *See* Meron, *The Geneva Conventions as Customary Law*, 81 A.J.I.L. 348 (1987).

4. Rio Declaration on Environment and Development, U.N. Doc. A/Conf.151/5/Rev.l, *reprinted in* 31 I.L.M. 874 (1992), Principle 24.

5. *Supra* n. 2.

6. Roberts, *The New Rules for Waging War: the Case Against Ratification of Additional Protocol I*, 26 Va. J. Int'l L., (1985) 109-170, at 148. While I do not deny that such a vessel can be a legitimate target for military action, the pertinence of environmental concerns for the decision to destroy and sink it, or to choose alternative ways to stop its course, can no longer be denied.

7. U.S. Department of Defense, CONDUCT OF THE PERSIAN GULF WAR, FINAL REPORT TO CONGRESS, 1992, App. O. at 624. Yet the report concluded that, even if applicable, the new provisions of Additional Protocol I would "in all likelihood" not have been an obstacle to Iraq's actions. *Id.* at 625. That conclusion was probably premature. See now the Legal Adviser of the State Department Conrad Harper, in his opening address to the Symposium: "We have yet completely to fathom the consequences of this massive, reckless poisoning of the environment, but they are plainly serious. The Gulf's ecosystem has been disrupted for years to come - for as long as twenty years according to some experts." *Supra* Chap. II at 9.

8. U.S. Department of the Army, *Operational Law Handbook* (1995), at 5-1.

9. U.S. Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP 1-14M (1995), para. 8.1.3.

10. German Federal Ministry of Defence, *Humanitarian Law in Armed Conflict - Manual* (1992). *See* the Commentary to the Manual, edited by Fleck, to be published by Oxford University Press.

11. Regulations Respecting the Laws and Customs of War on Land, of 18 October 1907 (Hague Regulations), Art. 23(g), annexed to Hague Convention No. IV, Respecting the Laws and Customs of War on Land, 1907, 36 stat. 2227; T.S. 539; and Convention Relative to the Protection of Civilian Persons in Time of War, Arts. 53 & 147, *supra* n. 1. For the definition of what is a lawful military objective *see* Additional Protocol I, Art. 52, para. 2, *supra* n. 2.

12. Preamble to the 1899 and 1907 Hague Conventions; *see also* Additional Protocol I, Art. 51, para. 5, *supra* n. 2.

13. COMMENTARY ON THE ADDITIONAL PROTOCOLS OF 8 JUNE 1977 TO THE GENEVA CONVENTIONS OF 12 AUGUST 1949, (Sandoz, Swinarski, & Zimmermann, eds. 1987) at 663. *See also* BOTHE, PARTSCH, & SOLF, NEW RULES FOR VICTIMS OF ARMED CONFLICTS, COMMENTARY ON THE TWO 1977 ADDITIONAL PROTOCOLS TO THE GENEVA CONVENTIONS OF 1949 (1982).

14. Additional Protocol I, Art. 51, para. 5, *supra* n. 2.

15. As of 30 September 1995.

16. Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, of 18 May 1977, *reprinted* in 1108 U.N.T.S. 151; 16 I.L.M. 88 (1977).

17. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, of 10 October 1980, *reprinted in* 19 I.L.M. 1524 (1980). Its Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps and other Devices (Protocol II) is of particular interest insofar as the use of anti-personnel landmines is concerned.

18. *Supra* n. 2.

19. ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT, (Plant ed. 1992).

20. Formulated and published by the Commission on Environmental Law of I.U.C.N. - The World Conservation Union, in cooperation with the International Council of Environmental Law, March 1995. *See* in particular draft Article 32.

21. For references *see* Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 A.J.I.L. 637 (1995), at 640.

22. The four Geneva Conventions and both Additional Protocols explicitly oblige parties to these treaties to disseminate knowledge of international humanitarian law among their armed forces. *See e.g.* Protocol I, Art. 83, and Protocol II, Art. 19, *supra* n. 2.

23. The ICRC's reports were published as part of U.N. Doc. A/48/269 (1993) and U.N. Doc. A/49/323 (1994).

24. U.N. General Assembly Resolution 49/50, 9 Dec. 1994, para. 11. For the text of the (revised) *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict, see* the Annex to U.N. Doc. A/49/323 (1994) 49-53, and *supra* n. 21. (The *Guidelines* are appended to this volume as Appendix A.)

25. *Supra* n. 21.

26. *Guidelines*, *supra* n. 24, II. (6).

27. Some standards have been specified by the 1980 Conventional Weapons Convention, *supra* n. 17.

28. U.N. Security Council Resolution 687 (1991), 3 Apr. 1991, para. 16.

29. *See* the relevant provisions in the four Geneva Conventions and Additional Protocol I on penal sanctions.

30. Fourth Geneva Convention, *supra* n. 1, Art. 147.

31. U.N. Doc. S.25704, annex (1993).

32. U.N. Doc. S/RES/955 (1994).

33. To my knowledge, no indictment has (yet) included environmental matters.

34. U.N. Doc. A/49/10 (1994).

Chapter XXXII

Protection of the Environment During Armed Conflict and Other Military Operations:The Way Ahead

Dr. Dieter Fleck*

May I express my gratitude for once again being invited to Newport to participate in discussions on a subject of considerable interest to the international legal community. The Naval War College must be congratulated for designing and organizing this forum for decision-makers and experts to jointly develop a new approach.

The word 'environment' does not figure in the classical international instruments that have shaped the existing law of armed conflict during the last 150 years. At the end of this century, however, it became a key word for the survival of mankind. This alone is a good reason for a dynamic interpretation of existing conventional rules. The prohibition of widespread, long-term and severe damage to the environment (Articles 35 (3) and 55 (1) of the Environmental Modification Convention (ENMOD)[1]) reflects the rule of proportionality and damage limitation which remains of high importance for the strategy of the Atlantic Alliance. Severe environmental damage, as in the burning of oil fields in Kuwait and the release by Iraqi forces of large quantities of crude oil into the Persian Gulf, must be considered as being out of proportion to any military purpose; they are in no sense 'collateral.'

I. Guidelines Reflect Acceptable Policy

The revised Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict, prepared for the Sixth Committee of the U.N. General Assembly,[2] reflect existing rules of customary law and/or acceptable policy. It was fully appropriate that the 49th General Assembly has invited all States to disseminate these guidelines widely and to give due consideration to the possibility of incorporating them into their military manuals and other instruction addressed to their military personnel.[3]

The German manual of 1992[4] did not address the subject fully. In its Section 401 it referred to the prohibition on causing widespread, long-term and severe damage to the natural environment. Section 403 explains that 'widespread',

'long-term' and 'severe' damage is a major interference with human life or natural resources which considerably exceeds the battlefield damage to be regularly expected in a war. As for armed conflict at sea, Section 1020 underlines the prohibition on employing methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment. The commentary to the German manual[5] focuses on definitional problems as far as the limitation of damage to the environment is concerned, and explains that Article 35 (3) of Additional Protocol I[6] hardly allows conclusions as to concrete obligations, nor legal evaluation of specific behavior.

The forthcoming revision of the U.S. Commanders's Handbook on the Law of Naval Operations[7] shows a more general approach by stressing the affirmative obligation of a commander to avoid unnecessary damage to the environment to the extent that it is practicable to do so consistent with mission accomplishment. While it is valuable insofar as it articulates the commander's obligation to consider the environmental damage which will result from an attack on a legitimate military objective, more detailed criteria for balancing military necessity against the interest in protecting the environment could and should be developed in accordance with the Guidelines.

In the preparation of the recent San Remo Manual on International Law Applicable to Armed Conflicts at Sea[8] the conclusion was reached that there does exist a duty upon States during peacetime not to harm the marine environment; but the application of this obligation in armed conflict, beyond the threshold indicated in the ENMOD Convention and in Articles 35 (3) and 55 of Additional Protocol I, was still ambiguous and uncertain. Section 44 of the San Remo Manual states:

> Methods and means of warfare should be employed with due regard for the natural environment taking into account the relevant rules of international law. Damage to or destruction of the natural environment not justified by military necessity and carried out wantonly is prohibited.

There was considerable discussion as to whether the operative standard for the parties to an armed conflict should be "due regard" or "respect" for the marine environment. The due regard formula, taken from the 1982 United Nations Convention on the Law of the Sea (1982 LOS Convention), was eventually accepted as reflecting the balance between operational requirements and the duty to protect and preserve the marine environment.[9]

Hence, I submit that legal sources referred to and policy statements made in the revised Guidelines should be incorporated more fully into military manuals and other instruction in order to stress the importance of environmental protection in all military operations.

This does not mean, however, that the laws of armed conflict are altogether clear today. While there is an increase in conflict situations, international wars, for which the laws of war were developed over centuries, are no longer a normal phenomenon. The term 'operational law,' coined in the U.S. forces some years ago, describes, indeed, a much more realistic concept. In this respect, the role of peacetime rules and the impact of international standards in non-international conflict situations are key issues which require convincing answers.

II. Peacetime Rules Continue to be Applicable in Armed Conflict

Subject to the application of the laws of war, peacetime obligations in principle also apply in war, and they remain applicable in the relations between belligerents and third parties.[10]

As explained in paragraph 5 of the revised Guidelines, international environmental agreements and relevant rules of customary law may continue to be applicable in times of armed conflict to the extent that they are not inconsistent with the applicable law of armed conflict.

It remains an open question if and how this could apply, *e.g.*, to certain rights of coastal States specified in Articles 25, 192 and 194 of the 1982 LOS Convention or to the 1985 Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol of 1987 on Substances that Deplete the Ozone Layer. There might be no easy answers to be found. Even in such cases where warships were more or less expressly excluded from the application of certain rules, subsequent State practice must be evaluated. It should also be considered that peacetime operations, including U.N. peacekeeping missions, cannot easily be separated from operations in which the law of armed conflict applies.

III. Armed Forces are also Required to Comply with the Rules Applicable in International Conflicts in Non-international Conflicts

The applicability of the laws of war in non-international conflicts requires a new assessment where longstanding principles of common Article 3 of the 1949 Geneva Conventions[11] and Additional Protocol II[12] prove to be hardly valid and new answers may be given by *opinio juris* and State practice.

Controversies on details of Additional Protocol I are of little relevance given the fact that most of the armed conflicts today are of an internal nature.

Paragraph 6 of the revised Guidelines encourages parties to a non-international armed conflict to apply the same rules that provide protection to the environment as those which prevail in international armed conflict. Accordingly, States are urged to incorporate such rules into their military manuals and instructions on the laws of war in a way that does not discriminate on the basis of how the conflict is characterized.

This recommendation is in conformity with the German Manual[13] and with U.S. directives.[14] It clearly deviates from existing conventional law, but policy decisions of this kind may have a greater bearing on the protection of the environment than any legalistic approach.

In this respect, clear principles are more important than detailed controversies or even semantics. In no case could civilized armed forces and their democratic political leadership accept a 'double book mentality' for military operations in international conflicts on the one hand and non-international conflicts on the other.

IV. New Conventional Law is Neither Necessary nor Desirable

These considerations on the impact of peacetime law on military operations and on applicable standards for non-international conflicts may strongly influence environmental considerations. Not surprisingly, the debate to assess the need to strengthen legal protection of the environment has brought up a variety of proposals for legal action.[15] While some experts have expressed themselves in favor of new international accords to establish additional norms for protection of the environment across the spectrum of military operations involving armed conflict, there is now an emerging consensus that new conventional law is not required, but that there is a need for providing enhanced means to enforce existing rules.[16]

New international instruments, indeed, are not necessary. The revised Guidelines largely rely on existing international norms. New instruments would even be undesirable: they would only increase the existing gap between international legal obligations in force and the readiness for their observance. Thus, work on such new instruments could severely disturb international cooperation on the issue which is so urgently needed.[17] As Legal Adviser Conrad K. Harper has stressed in his Opening Address, we should resist the normal inclination of law makers to embrace discussions of rights rather than to confront sticky, practical, and, indeed, often seemingly intractable questions embedded in issues of compliance and remedies. Hence, the important objective we are facing in this area is not creating new law, but implementing existing rules and enforcing them.

V. New Efforts Shall be Taken to Implement Existing Rules and Effect Compliance

Implementation of existing law requires enhanced efforts of its dissemination, a dynamic interpretation of its principles and provisions, and a constant readiness of States to strengthen international consensus on common values.

The need for better dissemination of existing rules is the best reason for incorporating the Guidelines referred to above into military manuals and other instructions as recommended by the 49th U.N. General Assembly.

An important example of dynamic interpretation was the decision taken by President Ford in his Executive Order of 8 April 1975[18] that the United States would renounce, as a matter of national policy, first use in war of herbicides and first use of riot control agents except in defensive military modes to save lives. Another good example was reported by the then-Chairman of the Joint Chiefs of Staff, General Colin Powell, in his report to Congress on Coalition operations in the Gulf in 1991, where he explained that the provisions of Additional Protocol I, for the main part, applied as if they constituted customary law.[19]

Enforcement measures also include initiatives towards a broader acceptance of existing conventional law. In this respect, reference shall be made to the successful appeal launched by the 1989 Paris conference on the prohibition of chemical weapons, which had called upon all States which have not done so to accede to the 1925 Geneva Gas Protocol, and to the constant appeals by the U.N. General Assembly 'to consider' ratification of Additional Protocols I and II. Indeed, new efforts are now necessary and timely to make these Protocols truly universal.

Significant efforts for better implementation of legal rules must include improvements of verification. In this respect, existing means of international law, so far, have not been used sufficiently. This is true, *e.g.*, for those cooperative fact-finding activities under Article 90 of Additional Protocol I. But it also applies to existing possibilities of the United Nations. U.N. experts and also U.N. peacekeepers should assist more actively in environmental fact-finding as one of the prerequisites for stable post-conflict peace-building. It would be worthwhile to combine forces from various sources in order to avoid propaganda effects and achieve practical results.

All such efforts could never be achieved except through international co-operation. The International Committee of the Red Cross (ICRC),[20] States and international organizations active in this field deserve our gratitude and respect. It is essential to lend support to these activities also on behalf of governments and armed forces. Without such support, it would remain difficult to ensure compliance with existing law, to improve implementation and to respond in a convincing manner to expectations of the public at large.

VI. NATO Should Play a Leading Role in Implementing Operational Law and Encouraging Effective Compliance

Until now, there have been no exact criteria for a coherent assessment of environmental damage in military operations. A variety of relevant parameters should be considered in this respect in order to balance measures necessary for an effective defense against the consequences for humankind and the environment.

NATO, as one of the first international organizations to do so, began to systematically deal with environmental problems when establishing the Committee on the Challenges of Modern Society (CCMS) as early as 1969. The

Alliance Science for Stability program has so far supported considerable efforts of technological research on environmental protection in peacetime. The time has come to supplement these activities by developing a cooperative approach to protection of the environment in times of armed conflict.

A proposal for a CCMS Pilot Study on the Protection of the Environment in Military Operations was forwarded by Canadian, German and Norwegian experts in January 1994. Though various delegations have offered their support and expressed their interest in actively participating in this project, certain objections were raised by two delegations which were concerned about negative military implications of such a study. Following a German proposal, discussion in the CCMS was postponed to allow for a reassessment. It shall be taken up again in due time.

The CCMS should, indeed, provide its resources to collect further expertise, influence interpretation and support appropriate activities to implement operational law effectively. Indeed, the Alliance's new Partners in Eastern Europe are looking forward to receiving support and guidance on environmental matters, also as far as military operations are concerned, as was expressly stated by representatives from Croatia, Hungary, Ukraine and other States in the recent United Nations Environmental Program Conference held in Linköping, Sweden in June 1995.[21]

The CCMS provides a unique opportunity for reaching balanced results which are politically and militarily acceptable. In the absence of such activities, this topic would certainly be taken up by other fora in which the same degree of expertise and political-military experience would hardly be available.

The proposed study should focus on problems of application and implementation of the Guidelines mentioned above. Its main objectives could be the preparation of detailed case studies for the protection of the environment in military operations, the elaboration of a code of conduct, and its dissemination by appropriate means. This work could support the work on military manuals and instructions and help to strengthen political and military cooperation, consistent with the Atlantic Alliance's new, broad approach to its fundamental security tasks. It would involve a multidisciplinary effort, embracing lawyers, environmental experts and military officers.

The effort is worthwhile and necessary if protection of the environment is to be taken seriously in security debates.[22] It should certainly be pursued if we wish to face the challenge that environmental disasters must not be caused by military operations.

Notes

*Director, International Agreements and Policy, Federal Ministry of Defense, Bonn, Germany. The views expressed in this paper are those of the author and do not necessarily reflect either the policy or the opinion of the German Government.

1. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 18 May 1977, 31 U.S.T. 333; T.I.A.S. 9614.

2. U.N. Doc A/49/323, Nov. 1994, annex, at 49-53; *reprinted in* 89 A.J.I.L. 641-44 (July 1995). [The Guidelines are set out in Appendix A of this volume.]

3. U.N.G.A. Res A/49/737, 9 Dec. 1994; *see* Gasser, *For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action*, 89 A.J.I.L. 637 (July 1995).

4. German Federal Ministry of Defence, *Humanitarian Law in Armed Conflicts - Manual* (1992).

5. Oeter & Heinegg *in* THE HANDBOOK OF HUMANITARIAN LAW IN ARMED CONFLICTS (Fleck, ed. 1995), Secs. 403 & 1020.

6. Protocol Additional to the Geneva Conventions Relative to the Protection of Victims of International Armed Conflicts (Protocol I) with Annexes, 1977, *reprinted in* 16 I.L.M. 1391 (1977).

7. U.S. Department of the Navy, *The Commander's Handbook on the Law of Naval Operations*, NWP 1-14M (1995), para. 8.1.3.

8. SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA (Doswald-Beck ed. 1995) para. 44.6.

9. *Id.* at para. 44.6.

10. Heinegg & Donner, *New Developments in the Protection of the Natural Environment in Naval Armed Conflicts*, 37 Germ. Y.B. Int'l L. 281 (1994), at n. 296.

11. 1949 Geneva Conventions Relative to the Protection of Victims of International Armed Conflicts, 6 U.S.T. 3114, 3217, 3316, 3515; 75 U.N.T.S. 31, 85, 135, 287.

12. Additional Protocol to the Geneva Conventions Relative to the Protection of Victims of Non-international Armed Conflicts (Protocol II), 1977, *reprinted in* 16 I.L.M. 1442 (1977).

13. *Supra*, n. 4, at sec. 211.

14. U.S. Department of Defense Directive 5100.77, *Law of War Program*, 10 July 1979, para. E-1; *The Commander's Handbook*, *supra*, n. 7 at 21.

15. ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT (Plant ed. 1992).

16. McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, Hague Y.B. Int'l L. 75-84.

17. *Cf.* Fleck, *Legal and Policy Perspectives for the Protection of the Environment*, *in* II EFFECTING COMPLIANCE, ARMED CONFLICT AND THE NEW LAW (Fox & Meyer eds. 1993), Chap. 7 at 143-57.

18. Exec. Order No. 11850, 40 Fed.Reg. 16187 (1975).

19. *Cf.* GREEN, THE CONTEMPORARY LAW OF ARMED CONFLICT (1993), at xv, who made it clear that his book has been written on the same premise.

20. ICRC, Meeting of Experts on the Protection of the Environment in Time of Armed Conflict (Geneva, 27-29 Apr. 1992), Report on the Work of the Meeting (Sept. 1992); Second Meeting of Experts on the Protection of the Environment in Time of Armed Conflict (25-27 Jan. 1993), Report on the Work of the Meeting (Apr. 1993). The Report of the Expert's Third Meeting was submitted to the U.N. Secretary-General for inclusion in his report to the General Assembly [U.N. Doc. A/48/269, ch. II (1993)].

21. United Nations Environment Program (UNEP)/Economic Commission for Europe (ECE), Meeting on Military Activities and the Environment, hosted by the Government of Sweden, Linköping, 27-30 June 1995, Report of the Meeting, U.N.E.P./MIL/3 (7 July 1995), paras. 9, 30, 35.

22. *Cf. Environmental Change and Security Project Report* (Simmons ed.), Woodrow Wilson International Center for Scholars, Spring 1995.

Chapter XXXIII

Protection of the Environment in Time of Armed Conflict: Environmental Protection in Military Practice†

Dr. John H. McNeill*

I am most grateful to have the opportunity today to speak to you on this timely topic. As we are aware, there exists a continuing and, indeed, growing international interest in the subject of protecting the environment during and from military operations.

At the current stage of development of international law, the world community has every right to expect that concerns for the well-being of the environment will be taken into account by those planning and executing military operations. War itself is no longer looked upon as the moral or functional equivalent of a natural disaster, almost an act of God, as was the view in the 19th Century when States were free to initiate hostilities against each other. In the modern era, States and individuals alike can be held responsible for acts such as crimes against the peace and grave breaches of the law of war. This responsibility can extend to international damage to the environment in certain cases.

During the 20th Century, great natural devastations have accompanied the tragic human losses suffered during the 1914-1918 and 1939-1945 wars. My own father, as a soldier in the American Army, fought in the battle of the Huertgen Forest in 1944—an area of the German Ardennes less than 300 km from The Hague— that even today remains so despoiled by that battle that trees cannot be taken for lumber due to the amount of lead imbedded in the timber.

Today, we are all too aware of the human tragedy unfolding in Bosnia-Herzegovina, accompanied as it is by significant damage to the natural environment. But perhaps the most dramatic wartime environmental devastation in recent years occurred in Kuwait and the Persian Gulf as a result of premeditated and deliberate acts of environmental terrorism perpetrated by the Government of Iraq and its military high command. These acts, which included the sabotaging and torching of some 732 oil wells in Kuwait, created fires that

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† Paper originally presented at the Conference Commemorating the 70th Anniversary of the AAA, held at The Hague, 19-21 July 1993.

have been described as "one of the most extraordinary man-made environmental disasters in recorded history."[1] The health and environmental risks created by the well fires were certainly of major importance; however, although 3 million barrels of oil were being burned per day for an extended period, the global effect was fortunately moderated by the fact that—no thanks to Iraq—the plume of smoke created was confined well below the stratosphere, and by the additionally fortunate circumstance that the composition of the smoke particles made it likely they would be returned to the ground by precipitation.[2] On the local and regional level, of course, the smoke adversely affected air quality, visibility and surface temperatures.[3] The last well fire was extinguished on 6 November 1991—most fires had been set almost 10 months earlier.

Equally destructive was the damage caused by the deliberate spillage of oil, begun on 12 January 1991, and which ultimately involved an estimated 4-6 million barrels of oil. A major source of the oil spill was the deliberate opening of control valves by Iraq at Kuwait's off-shore Sea Island terminal adjacent to Mina Al-Ahmadi. This action was mitigated by the bombing of associated shore-side pipelines and a related manifold complex by USAF F-111 aircraft, an incident which, interestingly enough, offers us an example of direct military action taken for reasons which included protection of the environment.[4]

The Gulf War and other recent events have clearly helped to focus the attention of the world community on the subject of our inquiry. What currently are the international legal obligations of States with regard to protection of the environment in times of armed conflict? Of particular interest in this regard is United Nations General Assembly (U.N.G.A.) Resolution 47/37[5] and its annexed memorandum.[6] This latter document, prepared by the Governments of Jordan and the United States to assist members of the Sixth Committee in their deliberations on the subject, identified nine specific provisions of existing international law which provide protection for the environment during armed conflict, and an additional five which apply to States parties to international agreements containing provisions on the subject.[7]

U.N.G.A. Resolution 47/37 itself contains a number of interesting aspects. Adopted by consensus, this Resolution reflects the deep concern of the world community about environmental damage and the depletion of natural resources during recent conflicts, recalling explicitly "the destruction of hundreds of oil-well heads and the release and waste of crude oil into the sea," and noting that "existing provisions of international law prohibit such acts." The Resolution went on to declare that "destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law."[8]

This statement is of special interest, not least because U.N.G.A. Resolution 47/37 was adopted unanimously.[9] During the Gulf War, some commentators expressed concern that the international legal structure was not sufficiently

developed to deal with problems such as these. While some strained to demonstrate that the 1977 U.N. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques[10] (ENMOD Convention) would have been violated by Iraq had it been a party thereto[11], most others concluded that this would not have been the case.[12]

It seems clear that the ENMOD Convention's prohibitions are directed not at environmental warfare as such, but rather at what has been termed "geophysical warfare," which implies the deliberate manipulation of natural processes.[13] Moreover, the ENMOD Convention prohibits a State party from the military or any other hostile use of environmental modification techniques that cause "widespread, long-lasting or severe" effects as the means of destruction, damage or injury to any other party. While it has been correctly noted that the insertion of the three quoted terms of limitation was "*particulièrement et très vigoureusement critiquée*,"[14] their use in this context has served to focus the prohibitions accurately on that behavior which gave rise to special concerns on the part of the sponsoring and negotiating governments at the time. The ENMOD Convention was never envisaged as a general prohibition against environmental damage during war. To find, however, as have numerous commentators, that even had Iraq been a party to the ENMOD Convention during the time of its invasion and occupation of Kuwait, the prohibition of the Convention was in all probability not violated, is not to agree with those who imply that this very useful convention is somehow defective.[15] Rather, it is simply to recognize that it is but one of many sets of prohibitions directed toward the protection of the environment during wartime, as reflected by its inclusion in the list of potentially applicable international agreements provided in the memorandum annexed to U.N.G.A. Resolution 47/37.

Still other observers took an opposite approach, arguing that there were no adequate legal prohibitions against what Iraq had done and that therefore a new international agreement was required to deter actions of this kind in the future. In fact, through U.N.G.A. Resolution 47/37, the world community has basically recognized that neither of these views is correct; that Resolution is confirmatory of the conclusion that the law of war itself contains a sufficient body of principles to provide a basis for deterrence and, should this fail, punishment. Indeed, and as you may know, the U.S. Government recently announced its intention to recommend to the Security Council that a commission be established to investigate Iraqi war crimes during the Gulf War.[16] Such a commission could be modelled on that established for Bosnia-Herzegovina pursuant to United Nations Security Council (U.N.S.C.) Resolution 780 (1992).[17] The U.S. Army's Report on Iraqi War Crimes During the Gulf War, already supplied to the United Nations, specifically cites acts of environmental terrorism as among the war crimes concerning which evidence has been compiled with a view to future prosecution.[18]

At this point, I would like to review the applicable rules of the law of war with respect to protection of the environment, in order to make clear that a substantive and accepted legal basis currently exists.

These provision are as follows:

(a) The fundamental rule, set out in Article 22 of the Regulations annexed to the 1907 Fourth Hague Convention respecting the Laws and Customs of War on Land, that the right of belligerents to adopt means of injuring the enemy is not unlimited;

(b) The rules governing the means of injuring the enemy reflected in Article 23 of the aforementioned Hague Regulations, that prohibit the employment of poison (Article 23(a)) and the destruction of the enemy's property unless such destruction be imperatively demanded by the necessities of war (Article 23 (g)), and in Article 28 of the Hague Regulations that prohibit pillage;

(c) The rule, set out in Article 55 of the same Hague Regulations, that the occupying State is only an administrator and usufructuary of the real estate of the occupied State and consequently is required to safeguard the capital of these properties and administer them in accordance with the rules of usufruct;

(d) The rule, set out in Article 53 of the Fourth Geneva Convention of 1949 relative to the Protection of Civilian Persons in Time of War, that any destruction by the occupying power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, is prohibited, except where such destruction is rendered absolutely necessary by military operations;

(e) It is a grave breach of international humanitarian law, and is a war crime, as set out in Article 147 of the Fourth Geneva Convention, to extensively destroy and appropriate property when not justified by military necessity and carried out unlawfully and wantonly;

(f) The rule, reflected in Articles 49 and 52 of the Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Additional Protocol I), that military operations may only be directed against military objectives and that acts of violence, whether in offense or defense ("attacks"), shall be strictly directed at military objectives;

(g) It is a war crime to employ acts of violence not directed at specific military objectives, to employ a method or means of combat which cannot be directed at a specific military objective, or to employ a means or method of combat the effects of which cannot be limited as required by the law of armed conflict;

(h) The rule that prohibits attacks which reasonably may be expected at the time to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, are prohibited; and

(i) The rule that, in so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.

In addition, the following five legal principles apply to States parties to the international agreements in which the principles are incorporated:

(a) Article 55 of Additional Protocol I requires States parties to take care in warfare to protect the natural environment against widespread, long-term and severe damage;

(b) Articles 35(3) and 55 of Additional Protocol I also prohibit States parties from using methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population;

(c) Article 55(2) of Additional Protocol I prohibits States parties from attacking the natural environment by way of reprisals;

(d) Article 2(4) of Protocol III to the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed To Be Excessively Injurious or to Have Indiscriminate Effects prohibits States parties from making forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives; and

(e) The ENMOD Convention prohibits States parties from engaging in military or any other hostile use of environmental modification techniques (*i.e.*, any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition or structure of the earth, its biota, lithosphere, hydrosphere and atmosphere, or of outer space) having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State party.[19]

The question has arisen as to whether these rules are sufficient to protect the environment. In order to reply, it may be instructive to examine how the above-cited principles were applied during the Gulf War.

With regard to the oil-related actions already referred to, it is clear that, *inter alia*, the elements of customary international law now codified in Articles 23 and 55 of the Hague Regulations cited above, as well as the provisions of Articles 53 of the Fourth Geneva Convention, were violated on literally hundreds of occasions — even if one were to take into account only the 732 oil wells that were sabotaged by Iraq and the large number of these that were set afire.[20] Pursuant to Article 147 of the Fourth Geneva Convention, a grave breach of that Convention occurred, since the Iraqi actions were committed against property subject to the protection

of that Convention and extensive destruction of such property took place unlawfully, wantonly and without military necessity.

Clearly, Article 22 of the Hague Regulations, limiting the means of injuring the enemy, was also violated in this regard. Moreover, the prohibitions of Articles 49 and 52 of Additional Protocol I, which require that military operations be directed only at military objectives and that acts of violence be strictly directed at military objectives, also appear to have been violated by the Iraqi attacks. While it may well be argued — and correctly — that not all attacks against oil wells are invalid *per se*,[21] it seems clear that in the case of the Iraqi actions, no military objective was served by its evident plan to systematically destroy Kuwait's entire oil production capability. It must be recalled that virtually every Kuwaiti well-head was packed with 15-20 kg of Russian-made plastic explosives and electrically detonated in furtherance of the pre-meditated and vindictive Iraqi policy. All 26 Kuwaiti petroleum gathering stations were also destroyed, as were the technical specifications for every oil well in Kuwait. There was clearly no justification for these Iraqi actions under the principle of military necessity, although at least one commentator has suggested that in the face of Coalition air superiority, smoke from the burning oil wells would impair visibility, which it did to a degree. Also suggested is a rationale for oil spillage into the Gulf, *i.e.*, to impede military operations and deny fresh water supplies to Coalition forces.[22] This latter use had led at least one other observer to raise the question of Iraq's having engaged in a form of chemical warfare.[23] Yet, as has been noted elsewhere, even if some transitory military advantages were to be derived from the smoke and oil slicks, the magnitude of the resultant destruction was dramatically out of proportion to those goals.[24]

Some observers have gone beyond these illustrations of criminal activity. For example, it has been suggested that Article 35(3) of Additional Protocol I, which prohibits the employment of "methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment" may be considered to have a normative content.[25] If so, it would of course provide an additional basis for prosecution of Iraqi officials. However, this view has not met with wide acceptance,[26] and indeed the memorandum appended to Resolution 47/37, previously mentioned, makes clear it is a matter of positive, not customary, law.[27]

As the above analysis suggests, the international community can draw upon a considerable body of existing law to prohibit wanton destruction of the environment during wartime. As we have seen, both customary and conventional international law contain important rules in this area. Is what we now have sufficient?

This question has already been examined at some length. Following the cease-fire accord in the Gulf area, which took effect on 3 April 1991, pursuant to

UNSC Resolution 687,[28] a number of international conferences were held to discuss whether the existing legal regime was in fact at a satisfactory stage of development.

These meetings included the following:

- the Conference on a Fifth Geneva Convention held at London in June 1991 under the sponsorship of Greenpeace International, the London School of Economics and Political Science, and the Center for Defence Studies;
- the Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, organized by the Government of Canada at Ottawa in July 1991; and
- the Consultations on the Law concerning the Protection of the Environment in Times of Armed Conflict, convened by the International Union for Conservation of Nature and Natural Resources and the International Council of Environmental Law at Munich in December 1991.

The Secretary-General of the United Nations has summarized the main conclusions of these meetings and has reported to the General Assembly on them. His chief finding was that:

> [a]t those meetings, generally speaking, the idea of creating an entirely new body of international rules for the protection of the environment was ruled out. Most experts insisted on the importance of existing law. . . .[29]

He went on to indicate his view that the next step for the international community was, instead, to ensure that even more States accede to or ratify existing treaties, that they observe their existing objectives and enact domestic implementing legislation.[30]

In other words, the existing legal regime is adequate in concept, and adequate in terms of its infrastructure. What is lacking is, of course, execution. This is where prosecution, *e.g.*, before a war crimes tribunal, could serve to provide sorely needed credibility to the regime of agreements currently in place. In essence, it is enforcement that is solely needed now, not more international agreements.

In this connection, mention should certainly be made of the work of the U.N. Compensation Council, established under U.N.S.C. Resolution 687 (1991) to deal with the filing of claims against Iraq for damage caused during its unlawful invasion and occupation of Kuwait.[31]

Paragraph 16 of U.N.S.C. Resolution 687, in declaring the liability of Iraq for any direct loss or damage, explicitly mentioned "environmental damage or the depletion of natural resources" as giving rise to liability. It has been noted that although both types of injury would be covered under normal principles, this explicit reference to them obviates any need to refer the issue to commissioners for decision.[32] The actual legal basis for the Commission's jurisdiction is found

in U.N.S.C. Resolution 674 (1990), paragraph 8 of which stressed the liability of Iraq in this regard.[33]

Specifically, the Governing Council of the U.N. Compensation Commission, by a series of decisions culminating on 16 March 1992, established criteria for the filing of such claims additional to the criteria supplied in U.N.S.C. Resolution 687 (1991). These criteria included a mechanism for making the payment of restitution available to governments and international organizations with respect to direct environmental damage and the depletion of natural resources resulting from Iraq's actions. This will include losses or expenses resulting from:

(a) Abatement and prevention of environmental damage, including expenses directly relating to fighting oil fires and stemming the flow of oil in coastal and international waters;

(b) Reasonable measures already taken to clean and restore the environment or future measures which can be documented as reasonably necessary to clean and restore the environment;

(c) Reasonable monitoring and assessment of the environmental damage for the purposes of evaluating and abating the harm and restoring the environment;

(d) Reasonable monitoring of public health and performing medical screenings for the purposes of investigation and combating increased health risks as a result of the environmental damage; and

(e) Depletion of or damage to natural resources.[34]

Nevertheless, we should always be ready to consider possible methods for improvement of the legal regime itself. Since Iraq's environmental depredations in Kuwait took place, there have been a number of suggestions to supplement the existing corpus of international law in this area. Among those most frequently put forward is the idea that the list of "objects and targets" explicitly protected from attack by a party during conflict, as set out in Additional Protocol I to the Geneva Conventions, should be expanded.[35] Taking this suggestion further, Professor Oxman is among those proposing a conceptual approach similar to that underlying the 1954 Hague Convention on the Protection of Cultural Property in the Event of Armed Conflict.[36] This analog would require the State in control of the environmental area of concern to avoid militarizing the site and otherwise avoid making particular objects therein located inviting targets. In return, attacks on such sites would be completely prohibited.[37]

During a further meeting of experts, convened at Geneva in April 1992 by the International Committee of the Red Cross, the problem of protecting the environment in times of armed conflict was also considered. In particular, and closely related on the theoretical level to the 1954 Hague Convention, was the proposal made at the meeting to protect nature reserves ("subject to conditions that remain to be set"), which could be likened to demilitarized zones or other protected areas.[38]

The 1954 Hague Convention provides, in Chapter II, for special protection in the form of immunity from attack for a limited number of refuges intended to shelter movable cultural property in the event of armed conflict and of centers containing monuments and other immovable cultural property of very great importance, with three important provisions:

- they must be situated at an adequate distance from any large industrial center or from any important military objective;
- they are not used for military purposes; and
- they are distinctively marked and entered in an international register maintained for the purpose.[39]

Thus, this is an aspect of possible future interest for protection of the environment during hostilities that may prove worthy of examination.

Meanwhile, however, the International Committee of the Red Cross (ICRC) has itself stated that, while in favor of doing more to protect natural resources in time of armed conflict, it generally has reservations about proposals to undertake a new process of codification in this area. Rather, the ICRC stress is also on the need for compliance.[40]

The Secretary-General's Report also mentioned several other points. Of these, I would draw your attention to only one, the question of the use on the battlefield of certain specific weapons which may represent a growing risk to the natural environment. The Report stated,

> [t]he law of armed conflict must therefore take these technical developments into account and keept [*sic*] their effects within tolerable limits.[41]

This is a statement with which few would quarrel. Yet its precise meaning is unclear. Is it a warning against the use of ballistic missiles armed with chemical warheads? Depleted uranium tank ammunition? I think not necessarily. Rather, I take this statement as a recognition that the law is sufficient, that the concepts of proportionality and necessity remain viable, and that the chief challenge for those who would see the environment protected to the maximum extent feasible during war is to find ways to enhance truly effective enforcement.[42]

Notes

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1. Congressional Research Service, The Environmental Aftermath of the Gulf War, 102d Cong., 2d Sess., S. Prt. 102-84, at 8 (Mar. 1992) (citing Federal Interagency Task Force).

2. *Id.*, at 11-26. The United Nations Environmental Program announced in May 1993 that the smoke from burning Kuwaiti oil wells had no effect on the global climate and that air pollution from burning oil was not severe enough to cause major health problems of human beings. Burning Kuwaiti Oil Wells Had No Effect on Climate: U.N.E.P., Agency France Presse, 11 May 1993, available in LEXIS: Nexis Library, CURRNT File.

3. *Supra* n. 1 at 25-26.

4. *Id.* at 35. *See also* U.S. Department of the Navy, Office of the Chief of Naval Operations, The US Navy in: Desert Shield—Desert Storm, App. A, at A-20 (1991).

5. Protection of the environment in times of armed conflict, G.A. Res. 47/37, U.N. GAOR, 47th Sess., U.N. Doc. A/RES/47/37 (9 Feb. 1993).

6. U.N. Doc. A/C.6/47/3.

7. *Id.* at 2-3.

8. U.N. Doc. A/RES/47/37, at p. 2.

9. U.N. Doc. A/C.6/47/SR.19 (9 Nov. 1992).

10. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 18 May 1977, 31 U.S.T. 333; T.I.A.S. 9614.

11. *See* Okorodudu-Fubara, *Oil in the Persian Gulf War: Legal Appraisal of an Environmental Warfare*, 23 St. Mary's L.J., 123, 179-181 (1991).

12. *See* Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, Ottawa, Chairman's Conclusions, 12 July 1991 (unpublished, copy on file with author).

13. Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, 285 Int. Rev. of the Red Cross 567, 575 (Nov.-Dec. 1991).

14. Fischer, *Environnement: La Convention sur l'interdiction de l'environnement à des fins hostiles*, 23 A.F.D.I. 820, 829 (1977).

15. Toukan, *The Gulf War and the Environment: The Need for a Treaty Prohibiting Ecological Destruction as a Weapon of War*, 5 Fletcher F. World Aff. 95, 99-100 (1991).

16. U.S. Department of State Press Release, 14 Apr. 1993.

17. U.N. Doc. S/RES/780 (6 Oct. 1992).

18. U.S. Department of the Army, War Crimes Documentation Center, International Affairs Division, Office of the Judge Advocate General, Report on Iraqi War Crimes (Desert Shield/Desert Storm) (1992) [Unclassified Version], at 10-11. *See also*, U.S. Department of Defense, FINAL REPORT TO CONGRESS, CONDUCT OF THE PERSIAN GULF WAR (1992), 623-26.

19. These rules are closely based on the list set forth in U.N. Doc. A/C.6/47/3 (1992), at 2-3.

20. *Supra*, n. 18 at 13.

21. On a related point, the questions of whether crude oil may be considered a *munition de guerre*, *see* Wallach, *The Use of Crude Oil by an Occupying Belligerent as a munition de guerre*, 41 Int'l & Comp. L.Q. 287 (1992).

22. *Id.* at 294 n. 28.

23. Carruthers, *International Controls on the Impact on the Environment of Wartime Operations*, 10 Envt'l & Plan. L.J. 38, at 48-49 (1993).

24. Oxman, *Combat Environmental Warfare (Environmental Terrorism During Wartime and the Rules of War)*, 22 Ocean Deve. & Int'l L. 433 (1991).

25. *See* Kalshoven, *Prohibitions or Restrictions on the Use of Methods and Means of Warfare*, *in* THE GULF WAR OF 1980-88 (Dekker & Post eds. 1992) at 97, 100.

26. *Id.* van Hegelsom, *Comments*, 123, at 125.

27. *Supra* n. 6.

28. U.N.S.C. Res. 687, U.N. Doc. S/RES/687 (3 Apr. 1991).

29. Report of the Secretary-General, Protection of the Environment in Time of Armed Conflict, U.N. Doc. A/47/328 at 9 (31 July 1992).

30. *Id.*

31. U.N. Doc S/RES/687 (3 Apr. 1991).

32. Crook, *The United Nations Compensation Commission - A New Structure to Enforce State Responsibility*, 87 A.J.I.L. 144, 147 (1993).

33. U.N. Doc. S/RES/674 (29 Oct. 1990).

34. U.N. Doc. S/AC.26/1991/7/Rev. 1, at 8 (17 Mar. 1992).

35. Hawkins, *The Gulf War: Environment as a Weapon*, Proc. Am. S. Int'l L. 220, at 222 (1991).

36. 249 U.N.T.S. 215 (14 May 1954).

37. *Supra* n.24 at 436.

38. *Supra* n. 29, at 11.

39. *Supra* n. 32, Art. 8-10.

40. *Supra* n. 29, at 14.

41. *Id.*

42. For a precis of the operational context in which these rules operate, see Terry, *The Environment and the Laws of War: The Impact of Desert Storm*, 45 Naval War C. Rev. 61 (1992).

Chapter XXXIV

The Debate to Assess the Need for New International Accords

Professor Ivan Shearer*

It is logical that the concluding panel of this Symposium should look ahead and ask: "what now?" Although this paper is necessarily being prepared in advance of the Symposium, I should be surprised if there were not a commonly held and broadly identifiable degree of concern for the natural environment (as well as for the human and built environments) in times of armed conflict and other military operations. There will, I am sure, be differences of emphasis in relation to the strategic imperative, in perceptions as to the adequacy of the existing legal framework, and in views about the utility of regimes of civil or criminal liability in respect of environmental harm in times of armed conflict. The issue likely to prove most difficult to resolve is the manner in which the international community - or individual nations - should seek to advance the cause of the protection of the environment in times of armed conflict in effective and practically realizable ways.

I. An Outline of Possible Positions with Respect to the Need for New International Accords

It is difficult to improve upon Dr Glen Plant's description[1] of the proponents of different points of view on this topic as falling into four "camps," of which the following is a brief summary:

Camp 1. Holders of this view, who include some influential policymakers of the major military powers, consider that existing customary law forms an adequate basis for the protection of the environment in times of armed conflict. They therefore consider that new binding international instruments are not necessary. The provisions of Additional Protocol I (1977)[2] are not regarded by them as having achieved the status of customary international law, in particular the provisions of Articles 35(3) and 55 which, in their view, set too precise a threshold of applicability of restraints on actions likely to affect the environment.

Camp 2. This camp differs from Camp 1 in regarding the provisions of Additional Protocol I as having achieved customary international law status. Moreover, adherents to this camp regard Articles 35(3) and 55 as having crystallized customary international law in setting restrictions on the ability of commanders to evaluate subjectively the effects of their actions on the environment. They generally share,

however, the views of Camp I that there is a danger in moving towards the adoption of any new instrument in that the dynamic force of customary law, and of existing international instruments, may be overshadowed and thereby weakened. Dr Plant counts the International Committee of the Red Cross (ICRC) as generally inclined to fall into Camp 2.

Camp 3. This camp contains those who consider existing customary and conventional law to be inadequate to protect the environment in times of armed conflict and who seek improvements and clarifications. Not all, it seems, would favor a new convention ("Geneva V") or new specific agreements or protocols; some would favor instead a nonbinding restatement of existing law, but with added emphasis on its application in respect of the environment.

Camp 4. While sharing the views of Camp 3, proponents in this camp would go further and seek to abolish the distinction between times of armed conflict and peace: all State operations should be governed by principles and rules prohibiting destruction of the environment, whether deliberately or collaterally.

All four camps seem to share at least one important concern: ways must be found to increase the effective application and observance of the existing (and future, if any) law.

II. The Essence of the Debate

The debate, it seems, is essentially between those who favor an approach based upon existing customary and conventional law, and those who favor progressive development of the law through new instruments.

A. The present content of customary law respecting the protection of the environment during armed conflict and other military operations.

Much will no doubt have been said already at this Symposium on this question. For my own part, I presently see the issues as follows:

(1) With the sole possible exceptions of Additional Protocol I (1977), Articles 35(3) and 55, and the ENMOD Convention (1977),[3] there are no principles or rules of customary international law specifically prohibiting environmental damage in times of armed conflict or other military activity. There are, however, established customary principles of the law of armed conflict which may be regarded as having application to environmental harms, among others. Similarly, there are some broad customary law principles of environmental law capable of application in times of armed conflict or other military activity, as well as in normal times and circumstances. Can these two streams of customary law be brought into conjunction without the artificial construction of a connecting channel?

The most fundamental of all principles of the customary international law of armed conflict is that the right of belligerents to adopt means of injuring the enemy is not unlimited. This statement has been reaffirmed in a number of instruments

going back to the Brussels Declaration of 1874[4] and most recently in Additional Protocol I, Article 35(1). From this fundamental principle descend three other principles of major importance: the principles of military necessity, humanity, and chivalry. By a short step in deductive logic from these, one arrives at the principle of distinction between combatants and noncombatants, and between military objectives and civilians and civilian objects. Overarching the particular formulations and applications of these principles in existing conventional international law there is general recognition of the force of the statement in the so-called Martens Clause, which first appeared in the Preamble to Hague Convention II, 1899,[5] and was restated in Additional Protocol I, Article 1(2):

> Until a more complete code of the laws of war is issued . . . populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and the requirements of the public conscience.

It is not difficult to find scope in these broad principles for their application to the destruction of the natural environment. Perhaps the statement that would best sum up the deductive application of these principles to the environment would be one constructed by way of adaptation of part of the definition of "indiscriminate attack" against civilians and civilian objects in Additional Protocol I, Article 51(5)(b) to embrace the environment:

> It is prohibited to launch an attack, or engage in other military operations, which may be expected, to cause incidental [collateral] damage to the natural environment which would be excessive in relation to the concrete and direct military advantage anticipated.

If such a proposition is fairly to be regarded as already customary law, the issue becomes that of how it may best be declared. For the adherents of Camp 1, it is no doubt already regarded as express or implicit within national policies and operational rules of engagement. For the adherents of Camp 2, it comes with the additional elements of a more precise indication of the leeways of operational discretion: "widespread, long-term and severe" damage to the natural environment (Additional Protocol I, Article 35(3)). Moreover, that Article is not expressly conditioned by any military advantage anticipated; rather it is assumed that to cross that threshold is in itself to exceed under all circumstances the dictates of military necessity. Thus, the issue between these two camps is whether such a judgment can be made as a matter of principle irrespective of the particular circumstances.

(2) It is also necessary to approach the issue of customary law from the direction of international environmental law.

Probably the only clearly established customary law principle of the natural environment is that no State may conduct activities, or permit the conduct of activities, on its territory that cause harm to the territory of another State, if that harm is of serious consequence and is established by clear and convincing evidence. (*The Trail Smelter Arbitration*[6]; the *Corfu Channel Case*[7]; the *Gut Dam Arbitration.*[8]) This principle descends from general concepts of the rights and duties of States and from the general principle of law *sic utere tuo ut alienum non laedas* ("so use your own property that you do not injure the property of another").

The principle is restricted to cross-boundary harm. No principle has, it seems, emerged with respect to harm directly or indirectly inflicted by a State through activities conducted in, or deliberately directed at, the victim State. The reason is clear: such activities would either be by the consent of the victim State (as, for example, in the carrying out of weapons tests) or would amount to an act of war.

The latter brings us to the direct issue posed. The former is illustrated by a recent dispute between Australia and the United Kingdom. In the 1950's and 1960's, nuclear tests were conducted by Britain in a remote part of Australia with Australia's consent in accordance with the terms of confidential memoranda of understanding. Under these terms, Britain was obliged to clear the site of contamination so far as was possible at the end of the testing program. A further memorandum of understanding was signed in 1967 recording the satisfaction of the two governments that that obligation had been carried out. In 1992, however, following an Australian Royal Commission of Inquiry into the state of the test site and the dangers of its use by aborigines living in traditional ways, Australia claimed that the earlier cleanup had been inadequate and that Britain was liable to make good its earlier promise by conducting, or paying for, extensive new works required in the light of new scientific evidence of the continuing contamination of the area and of the danger to the land's traditional owners and users. The United Kingdom refused to accept legal liability, arguing that it had been given a full discharge by the agreement of 1967. It did, however, later make an *ex gratia* payment of an amount approximately equivalent of half the cost of a full decontamination of the site.[9]

It is not clear that any general principle is revealed by this incident. Had no condition been attached of responsibility for making good the damage, it could have been argued that the consent of the host State extended to the voluntary assumption of risks involved in the activity. It does at least illustrate that what is thought to be not dangerous at the time, or what is thought to be slight harm, may turn out later, in the light of fuller scientific information, to be seriously harmful. This is now recognized in the current literature of environmental law as one of the elements involved in "the precautionary approach." It is to be wondered whether the limits of consent, as in the formulation of Draft Article 29 of the International Law Commission's work on the responsibility of States, could be

regarded as conditioned by the understanding of the time, reviewable in the light of later understanding:

> 1. The consent validly given by a State to the commission by another State of a specified act not in conformity with an obligation of the latter State towards the former State precludes the wrongfulness of the act in relation to that State to the extent that the act remains within the limits of that consent.[10]

The general principle of international environmental law stated above is based on good neighborliness and a duty to avoid harm. Armed conflict is the direct negation of these bases and so would appear, *prima facie*, to suspend the application of that principle. The law of armed conflict is *lex specialis* and prevails over the peacetime *lex generalis*. More limited situations short of armed conflict may be governed by one of the other principles recognized in the International Law Commission's Draft Articles on State Responsibility: *i.e.*, necessity and self-defense.

At present, therefore, I conclude that the two streams of customary law development meet at the same point. It may be otherwise if such developments as intergenerational equity should assume force as a binding legal principle. For then it could be argued that the effects of military operations on the environment cannot be judged only in relation to the circumstances appertaining at the time, but must take into account the future effects of environmental damage on the generations yet unborn. This approach is implicit in arguments raised in 1995 in relation to underground nuclear tests in the French Territory of Polynesia, in so far as they may present their most immediate danger to the local territory and people.

III. The Suggested Need for Clarification of the Law

The law of armed conflict and international environmental law are both especially dynamic bodies of law. Their points of intersection are therefore intrinsically likely to change as times and circumstances change. In principle, therefore, clarification of the law is highly desirable. It is desirable at the national level in the form of national policy, in the drafting of rules of engagement, and in the education and training of members of the armed forces. It is desirable at bilateral and multilateral levels in discussions between allies and like-minded governments. It is desirable at the universal level by way of setting standards for emulation and, if possible, enforcement. Clarification of the law, in whatever form it may take, must be a continuing endeavor.

Clarification of the law cannot consist solely of the formulation of broad principles and deducted rules. The effectiveness of such principles and rules depends upon a concurrent understanding of the kinds of circumstances in which they call for application. There is a need for inductive as well as deductive

reasoning to be applied, where certain vividly recorded or imagined circumstances are widely recognized as requiring that a particular rule be applied, or created if not already in existence. The actions of Iraq of discharging oil into the Gulf just before its expulsion from Kuwait may be counted as the single most important factor impelling consideration of the present topic.

Under what circumstances could military necessity justify the environmental harm of a deliberate release of oil into the sea? How great a harm was intended or foreseen by Iraq? How great was the harm in fact inflicted? To what extent can that harm be quantified and separated into (a) immediate harm to the opposed forces (*i.e.*, concrete and direct military advantage to Iraq), (b) short-term harm to the civilian population, (c) long-term harm to the civilian population and its environment, (d) widespread harm to the victim State and perhaps to third States, or even the international community (the global commons)? Is it a relevant factor that Iraq was a designated aggressor and was the subject of a collective enforcement action under the terms of Security Council resolutions? Is a State which has available to it less sophisticated and discriminatory weapons and means of conducting armed operations under a lower duty to avoid environmental harm than an opponent who has superior technology and is equipped to conduct operations with a higher level of regard for the natural environment?[11]

The historic process of clarification of international law has been the practice of States crystallizing into custom where accompanied by their *opinio juris*. This process is often found to be too slow and uncertain in the modern world. Normally, the process of crystallization of rules is speeded up though multilateral treaty making (conventional international law). The questions are whether the process of clarification would be aided or impeded by the conclusion of new multilateral instruments, and whether there are alternatives to be considered.

IV. The Advantages of New International Accords

Generally speaking, it is not difficult to see the advantages of conventional law expressed in multilateral conventions enjoying wide adherence by States.[12] Conventional law has the general qualities of relative clarity of expression, authenticity, and ease of invocation and application similar to those of statute law compared with unenacted law in national legal orders.

In the international legal order, which lacks central organs endowed with true legislative, executive and judicial powers, multilateral conventions occupy a prime rank in the sources of international law. In the particular context of the bringing together of the law of armed conflict with international environmental law, it might be thought that the quasi-legislative process of conventional lawmaking would be the most obvious solution to the problem of clarifying and progressively developing the law. Moreover, that process, which necessarily involves the participation of a large number of States in the negotiation and adoption of the

text, itself serves as an exercise in the raising and articulation of concerns, and as an occasion for the exhibitions of *opinio juris* (as well as of opinions as to what the law ought to be), which form part of the material from which at a later stage customary law may begin to flow in a parallel stream. The educative and persuasive (or dissuasive) effects of multilateral conventions are often counted among their chief benefits to the international community. That there is an accepted international standard of conduct, for which chapter and verse may be cited, can be of great political advantage to States, intergovernmental and non-governmental organizations, and individuals, as for example in the field of human rights.

V. The Disadvantages of New International Accords

It is difficult to point to any inherent disadvantage of multilateral instruments in general. The common features and effects of such instruments, however, may work disadvantageously in some circumstances.

In the first place, conventional law tends to take over the field previously held by customary law in relation to the particular subject matter in question and to exclude its further exogenous development. To the extent that the multilateral instrument codifies preexisting customary law it stunts further development of customary law except along a path parallel with the instrument. It is true that there may be exceptions, but these are rare. For example, the International Court of Justice in the *Fisheries Jurisdiction Case* (U.K. and Germany v. Iceland)[13] recognized that after the conclusion of the 1958 Geneva Convention on the Territorial Sea and Contiguous Zone,[14] and the abortive Second United Nations Conference on the Law of the Sea (UNCLOS II) in 1960, State practice proceeded in the direction of recognizing an exclusive right of coastal States to fisheries within 12 miles of their coasts and preferential rights beyond that distance. Neither of these developments were compatible with the express terms of the 1958 Convention. This very example, however, reminds us that the Third United Nations Conference on the Law of the Sea (UNCLOS III) was already under way at the time of the Court's judgment, and that the radically new institution of the exclusive economic zone achieved conventional recognition within a short space of time thereafter. The phenomenon therefore speaks more of strains and stresses on existing conventional law producing demands for changes to that law by way of further conventions, rather than of conventional law happily coexisting with later glosses or developments deriving from a customary law source.

In the second place, conventional international law tends to freeze the law in a particular time frame. It may become out of date before it has long been in force, or even entered into force. It is not as easy to update as national legislation. Time and immense resources are required to assemble a diplomatic conference, which is the only equivalent in the international legal system of a legislature. Political circumstances may sometimes militate against this course. Again, a law of the sea

example is instructive. The 1982 United Nations Convention on the Law of the Sea,[15] did not achieve the 60th ratification required for its entry into force until 16 November 1993. None of those 60 were developed countries. The reason was the inability of the developed countries to accept the provisions of Part XI of the Convention relating to the exploration and exploitation of the natural resources of the deep sea-bed. There was great reluctance to summon a Fourth United Nations Conference on the Law of the Sea in order to deal with this issue alone by reason of the danger of reopening other issues. An ingenious way around the difficulty was found through the negotiation and adoption in 1994 by a U.N. General Assembly Resolution of an Implementing Agreement[16] whereby all parties to that Agreement agreed to apply Part XI of the Convention in accordance with the Agreement, in so far as it differs from the original text of Part XI. Nevertheless, the compulsory element of the linkage between the two instruments essentially depends upon political forbearance, not strictly legal obligation. In 1995, in a more orthodox manner, States adopted a further Agreement regarding high seas fisheries, which considerably expands the law on that topic beyond what is contained in the 1982 Convention.[17] It was certainly by no routine amendment procedure that these remarkable results were achieved. One cannot predict with any confidence that other deficient international instruments will be so successfully remedied or updated.

Thirdly, the creation of law through multilateral instruments tends to be a highly politicized process. Typical negotiation procedures by way of consensus sometimes produce texts of perplexing opaqueness, with the result that some provisions are reduced either to the platitudinous or to the dangerously self-judging. An often cited example of the latter is Additional Protocol I, Article 44(3) relating to the obligation of combatants to carry arms openly.

It is tempting to dwell on the point that the more the drafting of multilateral international instruments is left to the experts, the more workable and durable those instruments are likely to be. For example, little criticism is heard of the four Geneva Conventions of 1949.[18] They were drawn in part from earlier and tried instruments, and from immense preparatory work by the ICRC during and immediately after World War II. The diplomatic conference of 64 States which adopted them was of comparatively short duration (21 April to 12 August 1949). By contrast, the diplomatic conference which adopted Additional Protocols I and II to the 1949 Conventions consisted at various times of up to 124 States and met for a total of some 8 months spread over four years. Another example is in the law of the sea. The Geneva Conventions of 1958 were preceded by exhaustive studies by the United Nations International Law Commission (I.L.C.), made up of 24 international lawyers of proven competence. The diplomatic conference was relatively short (24 February-27 April 1958) and the I.L.C. draft was not greatly changed. By contrast, it took no less than 12 negotiating sessions spread over 10

years to finalize the text of the 1982 United Nations Convention on the Law of the Sea. There was no preparatory work by the I.L.C. or by any other expert body; such specialized bodies as there were came from within the Conference, formed according to the exigencies of "representativeness" and "balance" rather than of expert knowledge.

The considerations outlined above would appear to militate against the desirability of subjecting the topic of the law of armed conflict and the environment to the uncertainties of the international negotiating process. These considerations must, however, be carefully weighed against the advantages of codification and progressive development, which are not the less weighty for having been stated here at lesser length. A combination of two elements might make the prospect of a new international instrument more acceptable:

(a) the preparation of draft texts by an expert and relatively small body, with wide knowledge of international law in general, not merely of the law of armed conflict or of international environmental law; and

(b) the determination in such drafts to codify and reaffirm existing principles of customary law rather than to proceed from new premises and attempt to create new law.

VI. Alternatives to the Adoption of New International Accords

There appear to be two, non-mutually exclusive, alternatives to adopting new international accords.

(a) The preparation of a Restatement of existing customary law principles of the law of armed conflict, and of other military operations, in relation to effects on the natural environment.

The Restatement could be prepared by a group of experts, convened under neutral auspices, perhaps by the ICRC alone or by the ICRC and a nongovernmental environmental body jointly. It would not be designed as an instrument open to adhesion in treaty form, and hence would not require a diplomatic conference to consider its results. It would not commit the sponsoring bodies; responsibility for it would be taken by the experts as individuals, not as representatives of the States of which they are citizens. It might be desirable for the group of experts to publish, at a certain point in the progress of their work, a discussion paper for circulation to governments and interested nongovernmental groups with a view to receiving comments and constructive suggestions. In the end, the Restatement would serve the useful end of clarifying issues and heightening awareness of them among governments and military officers. Like the Oxford Manual[19] of old, and perhaps the newly issued San Remo Manual on the Law of Armed Conflict at Sea,[20] such a Restatement would have stature and highly persuasive influence.

(b) The preparation of studies at the national level, with a view to their implementation in national policies and rules of engagement, and to their dissemination abroad.

It is well known that such national manuals as NWP 9—The Commander's Handbook on the Law of Naval Operations[21]—has wide circulation beyond the United States. Less well resourced States look for such a lead and are inclined to follow the practice indicated unless there is perceived to be some compelling national interest to the contrary. Studies incorporating forms of direction similar to NWP 9, rather than those published only in discursive form, are to be preferred if they are to find wider emulation and implementation.

Notes

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1. ENVIRONMENTAL PROTECTION AND THE LAWS OF WAR: A "FIFTH" GENEVA CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIME OF ARMED CONFLICT (Plant ed. 1992).

2. Protocol Additional to the Geneva Conventions Relating to the Protection of Victims of International Armed Conflicts (Protocol I), with Annexes, 1977, *reprinted in* 16 I.L.M. 1391 (1977).

3. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 1977, 31 U.S.T. 333; T.I.A.S. 9614.

4. Declaration of Brussels, 1874, 65 B.F.S.P. 1005; 1 A.J.I.L. (Supp.) 96 (1907).

5. Hague Convention No. II with Respect to the Laws and Customs of War on Land, 1899, 32 Stat. 1803; 91 B.F.S.P. 988; 1 A.J.I.L. (Supp.) 129 (1907).

6. United States v. Canada, 1938 and 1941, 3 REPORTS OF INTERNATIONAL ARBITRAL AWARDS 1905.

7. United Kingdom v. Albania, INTERNATIONAL COURT OF JUSTICE REPORTS, 1949 I.C.J. 4.

8. United States v. Canada, 8 I.L.M. 118 (1969).

9. Note, Australia-UK nuclear test sites rehabilitation settlement, *in Australian Practice in International Law*, 15 Australian Y.B. Int'l L. (1994), 649-50.

10. United Nations, Y.B. of the I.L.C. (1979), 292.

11. An issue prompted by analogy from the variable standard of preventive action to be expected of occupiers of land where fire breaks out on their property, as expressed by Lord Wilberforce in the Judicial Committee of the Privy Council on an appeal from Australia: *Goldman v. Hargrave* (1967) 1 AC 645.

12. *See, e.g.*, Tårk, *The Negotiation of a New Geneva-style Convention - A Government Lawyer's Perspective*, *in* ENVIRONMENTAL PROTECTION AND THE LAWS OF WAR, *supra* n. 1 at 96-103.

13. *Fisheries Jurisdiction Case*, U.K. v. Iceland, 1974 I.C.J. 3.

14. Geneva Convention on the Territorial Sea and Contiguous Zone, 1958, 15 U.S.T. 1606; T.I.A.S. 5639.

15. United Nations Convention on the Law of the Sea, 1982, *reprinted in* 21 I.L.M. 1261 (1982).

16. Agreement Relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea, of 10 Dec. 1982, with Annex, 1994, *reprinted in* 33 I.L.M. 1309 (1994).

17. Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995, *reprinted in* 34 I.L.M. 1542 (1995).

18. Geneva Conventions for the Protection of War Victims, 1949, 6 U.S.T. 3119-3695; T.I.A.S. 3362-3365; 75 U.N.T.S. 31-417.

19. 1913 Oxford Manual, The Laws of Naval Warfare Governing the Relations between Belligerents, Oxford (1913), *reprinted in* THE LAWS OF ARMED CONFLICT (Schindler & Toman eds. 1981) at 147.

20. SAN REMO MANUAL ON INTERNATIONAL LAW APPLICABLE TO ARMED CONFLICTS AT SEA (Doswald-Beck ed. 1994).

21. U.S. Department of the Navy, The Commander's Handbook on the Law of Naval Operations, NWP 9 (Rev. A)/FMFM 1-10 (1989).

Chapter XXXV

Comment: The Debate to Assess the Need for New International Accords

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I

As this symposium draws to an end, let me join the chorus of thanks and praise to the organizers. I believe we have met the objectives set for us.

I say this from the perspective of one who had a role in the process by which the debate moved from a call immediately following Operation Desert Storm for new law (as the law was obviously deficient), through the three very useful International Committee of the Red Cross (ICRC) meetings and debates in the United National General Assembly (U.N.G.A.) Sixth Committee, to the recommendation to States by the 1994 General Assembly of the Guidelines for Military Manuals. It will therefore come as no surprise that I was pleased to read and then hear the views of so many experts yesterday and today who agreed with the results of that work.

I note that, during those debates in 1992, 1993 and 1994, no one responded to my challenge to identify particular gaps in the law which leave the environment lacking protection during military operations. And none have been identified here.

However, I lament the fact that many of the papers fail to clarify (a) the differences between damage to civilian property that also causes damage to the environment, and direct damage to the environment that is not the consequence of damage to civilian or military property, (b) the legal regimes relevant to each, and (c) how they may differ from each other. We have seen that there is much law governing the former (indirect damage to the environment), and we all recognize that the environmental component is now well taken into account. The latter is a rare event in armed conflict, as seeking to damage the environment provides so little military advantage. Consequently, I believe we have more important things to do than spend valuable time and effort on that subject.

I also lament the fact that no one has yet mentioned that the real work called for by the General Assembly and the ICRC remains very much where we left it a year ago.

As Dr. Gasser has just recalled for us, the General Assembly "invited all States to disseminate widely the revised Guidelines for military manuals and instructions

for the protection of the environment in times of armed conflict." No one has indicated whether or how they have taken up this invitation.

Further, no one has indicated whether they have given the "due consideration" called for by the General Assembly "to the possibility of incorporating [these Guidelines] into their military manuals and other instructions addressed to their military personnel."

It could be that situation has prevailed here because the subject of our panel was limited to the need for new international accords, for which there seems to be general agreement that there is no such need.

Or it could be, as my informal survey of the attendees yesterday revealed, that the Guidelines have not been widely disseminated, and thus they have not been incorporated in military manuals and other instructions addressed to military personnel.

Now, I would be remiss if I did not recall for you that the third edition of the U.S. Navy's Commander's Handbook on the Law of Naval Operations, which was recently approved for publication as a tri-service manual (Navy, Marine Corps and Coast Guard), contains new guidance on environmental considerations in targeting (paragraph 8.1.3).

I can only assume that the annotations to this new edition, which are under preparation here at Newport, will include the Guidelines.

II

That brings me to the central message I wish to leave with you.

The Legal Adviser opened these proceedings with a call for dissemination. He said:

> Through the process of dissemination—by teaching what international law requires—the Naval War College is shaping the understanding of the men and women of the armed forces in whose hands the integrity of the environment rests during military operations.
>
> Precautionary, *ex ante* efforts of this sort are crucial if we intend, as a practical matter, to protect the environment, and not simply debate liabilities, enforcement, and remedies after the fact. By engaging in discussions that may well help shape the legal regime, this institution ensures that the perspective of the armed forces and the realities of armed conflict are not lost or neglected in the process. Only through a commitment to dialogue, education, and consultation shall we succeed in building a reasoned measure of respect for the environment in the international community.

Our luncheon speaker yesterday, Mr. George Vest, spoke eloquently about the great progress the U.S. Department of Defense has made in the past 25 years in enhancing our national security through focussed attention to peacetime environmental security, both here and abroad. But more remains to be done. He

need not have been so reluctant to take on the wartime aspects of environmental security.

You all are the key to accomplishing that mission. Each of you in this room is a teacher and has a national and international obligation to enhance the understanding of the law of war by your students and clients. What are the tools at your disposal?

As a starter, the papers presented here, and soon the printed proceedings of this conference.

But, as with the law of war generally, the uniformed lawyers in the room need a bureaucratic imperative. In 1977, the Secretary of Defense gave that to you in DoD Directive 5100.77. Without that directive, I doubt many (dare I say any) of us would have become involved, let alone interested, in the subject.

A similar directive is in the works, as Admiral Harlow's paper noted. The Joint Staff has recently proposed that a new Annex L, Environmental Considerations, be included in operational plans developed under the Joint Operational Planning and Execution System (JOPES). While I am unaware of the details of the proposal, I think it is an excellent idea, as I do not think that rules of engagement (ROE) are an adequate substitute for such planning. Rather, ROE are the consequences, the output, of proper planning, and can never substitute for such planning.

This new Annex L is another manifestation of the realization by military commanders, and their civilian leadership, that the environment is a commonly shared interest, as deserving of protection as are civilians and civilian objects. To paraphrase Professor Levie's remarks yesterday, it not as important what the law is that protects the environment *per se*, as it is that the law which does provide protection to civilians and civilian property (objects) also provides protection to the environment.

So the challenge is for each of you to undertake the long-term obligation to do all in your power to disseminate the law of war, including the law providing protection to the environment during armed conflict. Your professional obligation is not to try to develop new law. Your obligation is to do all that you can to see to it that those in a position to cause harm to the environment, to conduct military operations, whether in combat or in other operations, do so in an environmentally sensitive way, in compliance with all the rules of international and national law governing the conduct of miliary operations. The risks of not doing so are too great.

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*Office of the Legal Adviser, U.S. Department of State. These remarks are solely those of the author, and do not necessarily reflect the position of the United States Government or any of its agencies.

Chapter XXXVI

Comment: Protection of the Environment in Times of Armed Conflict—Do We Need Additional Rules?

Professor Wil D. Verwey*

The purpose of this paper† is to present and evaluate the major arguments for and against the views of those who hold, with, *e.g.*, the U.S. Government and the International Committee of the Red Cross (ICRC),[1] that there is no need to provide for supplementary rules ensuring (a more effective) protection of the environment when weapons speak in the chorus of politics, and to explore ways and means for reinforcing and supplementing existing rules should the conclusion be reached that the protection currently provided by these rules is not adequate.[2]

Accordingly, attention will successively be focused on the following main aspects of this currently "hot issue:"

(1) the relevant rules pertaining to international armed conflict, including those governing relations between belligerents[3] and those governing relations between belligerents and third (neutral) States;

(2) the relevant rules pertaining to non-international armed conflict; and

(3) conclusions on the protective adequacy of existing law and the possible need of additional rules.

I. International Armed Conflict

A. Relations Between Belligerents

1. Treaty rules explicitly related to environment protection.

The most prominent provisions dealing explicitly with environment protection in times of international armed conflict can be found in Protocol I Additional to the 1949 Geneva Conventions.[4] Article 35, paragraph 3, stipulates:

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† This paper is composed of core sections, relevant to this Symposium, of a more extended study appearing in the Leiden Journal of International Law, vol. I, no. 1 (1995).

> [i]t is prohibited to employ methods of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

The following observations on this provision may be pertinent.

a. The terms "widespread, long-term and severe" have not been defined. At the conference where the Protocol was drafted, agreement was merely reached on the clarification of the term "long-term," which is to be understood as referring to "a period of at least ten years."[5] Since the meaning of the two other terms has not been clarified at all, no authoritative answer can be given to the question of when and where any specific damage inflicted upon the natural environment should be deemed to violate the terms of this provision.

b. The triple standard put forward in this position is a cumulative one, which results from the use of the word "and:" damage has to be widespread *and* long-term *and* severe in order to be prohibited. Thus, even the most widespread and long-term damage which, for some reason, would not be considered to be also severe, would not be forbidden.

c. According to Bothe, Article 35, paragraph 3, is not meant to lower, but to supplement the traditional standard of protection provided under general rules of the law of warfare. Thus, this provision would:

> prohibit causing [widespread, long-term and severe] damage to the environment even where the environment constitutes a military objective or where the damage to the environment may be considered as not being excessive in relation to the military advantage anticipated.[6]

However, this is not at all certain. By reference to the general principle of law, which also applies to the law of warfare, that *lex specialis* prevails over *lex generalis*,[7] the provision may, in practice, very well result in lowering traditional standards of protection, *i.e.*, the cumulative triple standard may now render permissible what before would have been forbidden by reference to general legality requirements like that of proportionality and the prohibition of unnecessary suffering. Now, suffering may, from an environment protection point of view, no longer be considered "excessive" or "unnecessary" by parties to the Protocol, as long as it is not objectively clear that it is severe and widespread and long-term. Thus, the triple standard may indeed nullify the potential environment-protective impact that such general legality requirements may have had so far. And again, in the absence of an authoritative interpretation of the triple standard, no conclusive evidence can be provided as to when this is the case.

d. The provision certainly does not purport to prohibit all activities which may be harmful to the environment. Only those actions are forbidden which cause

damage, presumably visible, recognizable damage. This observation is to be understood in connection with the following one.

e. The provision merely prohibits methods or means of warfare "which are intended, or may be expected," to cause damage, *i.e.*, which are *known* to cause damage. Observations d. and e. alone tend to render the provision a rather meagre one in view of the following considerations. Firstly, potential harm may occur which is not directly visible or objectively demonstrable in the sense of causing discernible or perceptable damage. Secondly, many interactive natural processes have not yet been (fully) understood, resulting in the fact that harmful effects which are not (yet) recognized or expected may occur now or in the future. Only quite recently has science become able to demonstrate that even apparently restricted, relatively short-term and seemingly insignificant forms of environmental impact may subsequently turn out to have triggered serious or significant ecological disruption.

f. In this regard, mention should also be made of Article II, paragraph 4, of Protocol III annexed to the Inhumane Weapons Convention,[8] which prohibits the indiscriminate use of incendiary weapons. This Protocol recalls Article 35, paragraph 3, in its preamble and could, therefore, be considered as building on it. The provision in question reads:

> [i]t is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

However, this provision's scope is very restrictive, since—aside from the limitations imposed by Additional Protocol I itself—it pertains to only one specific type of weapon. In addition, the prohibition stipulated here is a very conditional one, since it only protects parts or objects of the environment which are not used for military purposes.

Another relevant provision of Additional Protocol I is Article 55, paragraph 1, which reads:

> [c]are shall be taken in warfare to protect the natural environment against widespread, long-term, and severe damage. This protection *includes* a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.[9]

The term "includes" might seem to suggest that this provision would prohibit more than what is mentioned there explicitly. However, it has never been claimed by the ICRC or the State parties that this is actually the case or that this Article would purport to prohibit more than Article 35, paragraph 3. On the contrary, the

last phrase of this provision entails an additional limitation to the general applicability of Additional Protocol I: it reflects a crucial disadvantage, from the perspective of environment protection efforts, of 'Geneva' law, namely that this body of law is essentially man-protection focused, that it is essentially anthropocentric (*i.e.*, that it does not, in principle, prohibit methods or means of warfare which do not at least *also* inflict damage upon human beings directly).[10] In addition, Article 55, paragraph 1, does not apply to means and methods of warfare affecting non-civilian parts, objects or assets of the environment, even if they would cause triple standard damage to them, since this provision ranks under Part IV, Chapter III, which is entitled "Civilian Objects." Identifying affected parts, objects or assets of the environment as a military objective or as an object of military significance would suffice to exclude the applicability of Article 55.

The third relevant provision of Additional Protocol I, Article 55, paragraph 2, reads:

> [a]ttacks against the natural environment by way of reprisals are prohibited.

Useful as this provision may be in itself, it does not cover military reprisals not directed on purpose *against* the environment as the object of attack, *i.e.*, it does not prohibit corollary environmental damage occuring in the course of acts of reprisal directed *against* objects other than the environment itself. In addition, by reference to the principles of interpretation *in dubio mitius, expressio unius est exclusio alterius*, and *eiusdem generis*, in combination, the prohibitive range of this provision would also appear to be confined to damage meeting the conditions of the triple standard.[11]

In addition, the following observations on the environment-protective merits of the relevant provisions of Additional Protocol I in general are submitted here:

> (1) the terminology chosen in the above-mentioned provisions reflects a kind of thinking prevailing at a time when environmental consciousness in connection with armed conflict had just begun to develop, in the aftermath of the Vietnam War.[12] This observation alone tends to render them obsolete;
>
> (2) the terminology chosen was clearly meant to exculpate, not to condemn retroactively the kind of environmental damage—no matter how serious, from a retrospective point of view, this may have been—inflicted by U.S. armed forces in Vietnam.[13]

Also, this observation significantly confines their prohibitive scope;

> (3) the afore-mentioned anthropocentric nature of 'Geneva' law, Additional Protocol I included, cannot do justice to the need of environment protection as a primary value in itself, as one begins to recognize it today;[14]

(4) the consequently archaic nature of its provisions—if a bit of an overstatement may be forgiven—is aptly illustrated, firstly, by the fact that the ICRC Draft Provisions made no reference to environment protection at all,[15] and, secondly, by the fact that Additional Protocol I, Article 85, paragraph 3, does not include the infliction of widespread, long-term and severe damage to the environment among the "grave breaches" which require punishment or extradition of offenders;[16] and

(5) it is generally agreed, also by the ICRC itself,[17] that the provisions of Additional Protocol I have not yet developed into generally binding rules of customary international law, since too many States have not become party to it.

Herewith, we turn to another potentially relevant treaty, the Paris Convention Concerning the Protection of the World Cultural and Natural Heritage.[18] The phrase "potentially relevant" is used here because this instrument is relevant under the present section only if the conclusion drawn by the Group of Senior Legal Experts of I.U.C.N. at its Amsterdam meeting in December 1992 is correct, namely that this Convention, concluded for times of peace, is also applicable in times of armed conflict.[19] It should also be observed that this Convention merely provides protection for natural objects identified and recognized as "natural heritage sites."

The next potentially relevant treaty is the 1925 Geneva Gas Protocol. The better view appears to be, however, that the Gas Protocol was never intended to protect the environment, and that even the employment of herbicides and defoliant agents of the types used during the Vietnam War would only be prohibited to the extent that they can be proven to be toxic to human beings and to actually cause human casualties.[20]

The next treaty, the Environmental Modification Techniques Convention (ENMOD Convention),[21] stipulates in Article 1:

[e]ach State Party to this Convention undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party.

According to Article 2, the term "environmental modification techniques" refers to "any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or outer space". In this regard, the (non-exhaustive) list of relevant phenomena includes:

[e]arthquakes; tsunamis; an upset in the ecological balance of a region; changes in weather patterns (clouds, precipitation, cyclones of various types, and tornadic storms); changes in the climate patterns; changes in ocean currents; changes in the state of the ozone layer; and changes in the state of the ionosphere.

A first preliminary observation pertaining to, again, merely the potential relevance of the ENMOD Convention, is that it is quite often - but incorrectly so -thought that this instrument would prohibit the abuse of the environment as a weapon. Recently, the same mistake was also made when the so-called "Jordanian item" was put on the agenda of the Sixth Committee of the U.N. General Assembly under the title "Exploitation of the Environment as a Weapon in Times of Armed Conflict."[22] However, not exploitation of the environment, let alone the environment itself, is the weapon: the weapon is the manipulated natural process, which may, but does not have to, affect the environment, *i.e.*, the manipulation of a natural process as an instrument of geophysical warfare.

A second preliminary observation—one which, surprisingly enough, also appears to have escaped the attention of authors on this subject—is that it has incorrectly become commonplace to rank the ENMOD Convention among the 'environment protection treaties.' However, the ENMOD Convention is *not* an environment protection agreement; it is not intended to protect the environment or parts thereof. It is meant to prevent "destruction, damage or injury to *any other State Party.*"

Presuming, however, that this phrase may include environmental destruction, damage or injury within any State party's territory—but this is no more than a presumption indeed— the word "or" constitutes a clear improvement with respect to the word "and" as it is used in Additional Protocol I: it transforms the triple standard into a non-cumulative one, thereby expanding its prohibitive range.

The same applies to the interpretation of the term "long-lasting," which, for the purposes of this Convention, according to a C.C.D. Understanding of 1976,[23] means: "[a] period of months, or approximately a season" (in contrast to a period of "at least ten years" in the case of Additional Protocol I). In addition, according to the same Understanding, the term "widespread" is supposed to be equivalent to "an area on the scale of several hundred square kilometers," while the term "severe" should be interpreted as: "involving serious or significant disruption or harm to human life, natural and economic resources or other assets."

One may presume—but, once more, merely presume—that "serious or significant disruption or harm" (whatever this may mean) includes environmental damage, by reference to the phrase "natural . . . resources or other assets." If this is correct, the word "or" in this phrase would again constitute an additional improvement with respect to the word "and" in the final phrase of Additional Protocol I, Article 55, paragraph 1.

The potential applicability of this Convention is subject, in any case, to the following limitations:

(1) it merely protects parts, objects or assets of the environment *within* the territory of State parties to the Convention, as follows from the final phrase of Article 1;

(2) just as in the case of Additional Protocol I, the drafting history and the terminology chosen suggest that the Convention was apparently not meant to cover those means and methods of warfare causing environmental harm which appeared to be militarily useful during the Vietnam War;[24]

(3) indeed, the negotiations focused on the threat of science fiction-like future technological developments.[25]

(4) many less high-tech developed States, in particular developing countries—which certainly also have the capacity to cause serious environmental harm by employing simple, more traditional means and methods such as arson—have not become parties;[26] and

(5) finally, the Convention's prohibitive phrases are vague, full of loopholes, and leave too much room for evasive interpretation (apart from the fact that they were not intended to prohibit practically employed and tested natural process-manipulating practices anyway).

Brief reference may finally be made here, below the level of binding treaty law, to the rather rare provisions on environment protection in times of armed conflict in supportive recommendatory I.G.O. documents. These include the Stockholm Declaration, Article 26 of which stipulates that "[m]an and his environment must be spared the effects of nuclear and other means of mass destruction,"[27] and the World Charter of Nature, Article 5 of which states that "[n]ature shall be secured against degradation caused by warfare or other hostile activities."[28] However, such provisions are non-binding, invariably abstract and vague, and their practical impact can only be marginal at best.

2. Treaty rules potentially related to environment protection.

Under the present section we confine ourselves to some observations on relatively concrete treaty provisions on *jus in bello* of a general character.[29]

In both the 'Hague' and 'Geneva' Conventions, several general provisions are found from which an indirect, corollary, environment-protective effect might emanate. They range from provisions prohibiting the unnecessary destruction of enemy property[30] to more specific provisions like those preventing starvation,[31] those prohibiting attacks on objects indispensable to the survival of the civilian population,[32] and those condemning attacks against dikes, dams, and nuclear power plants.[33] At first sight, such provisions might seem to lend themselves to unconventional interpretations encompassing an indirect protection of parts, objects or assets of the environment in one way or another.

However, under analysis it soon appears that all these provisions suffer from one or several environment-protective limitations or setbacks.

a. Many of them are merely conditionally prohibitive, since they bow—as part of the treaties in which they are found—to "necessities of war."[34]

b. Others are only conditionally prohibitive to the extent that they do not protect "military objectives" or "objects of military importance" (concepts which are interpretable at will by belligerents themselves).[35]

c. Again, others merely apply in situations where "severe losses" are directly inflicted upon the civilian population (likewise, a condition interpretable at random by belligerents, which at the same time entails a severe obstacle for their applicability to environment protection as a result of their anthropocentric orientation).[36]

d. As part of the 'Hague' or 'Geneva' law instruments, their applicability is limited further by the contractual *inter partes* principle governing treaty law in general, as well as, in the case of the 'Hague' law, by the *si omnes* clause which is found in, for instance, The Hague Land War Convention to which The Hague Regulations are annexed.[37]

e. The (old) 'Hague' law merely covers "war," not international armed conflicts falling short of "war."[38]

f. To the extent that they may seem to lend themselves to an environment-protective connotation—as in cases of the protection from stavation or destruction of dikes, dams or nuclear plants—they would merely indirectly protect the environment, prohibit only very specific military activities, and/or result in the protection of only particular pieces of the environment protection cake.

g. The most important conditioning factor is, however, that the question arises whether it is justified at all to inject such provisions with an environment protection-oriented meaning. Establishing a link between them and the modern objective of environment protection is, both factually and legally, disputable at best: all the 'Hague' and 'Geneva' Conventions and Protocols were drafted and entered into force at "pre-ecological" times, *i.e.*, at times when environmental concern and ecological awareness were virtually non-existent, in particular with respect to armed conflict. As Falk has correctly observed: "[a]ll of the law of war was drafted and evolved in a pre-ecological frame of mind."[39] Consequently, any effort aimed at a retroactive *hineininterpretieren* of an environmental connotation into such old-fashioned, general treaty provisions, is bound to be a tricky interpretative exercise, which cannot be performed without running the risk of provoking substantial criticism—an observation which, at the same time, exposes its questionable evidential value.

3. Basic principles of customary *jus in bello* potentially related to environment protection.

Under this section, the question arises whether—and, if so, to what extent—fundamental principles of generally binding customary *jus in bello* may

be, or may have become, environmentally relevant. In other words, the question to what extent prescriptions like the requirement of proportionality, non-excessive suffering, discrimination between military objectives and civilian objects, inviolability of civilian targets as primary objects of attack, and the "Martens Clause" may be, or may have become, endowed with an environment-protective meaning.[40]

Today, the thesis is adhered to by some that the "Martens Clause," for instance, would certainly have become relevant to the present topic. In its modern form the Clause reads:

> [c]ivilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience.[41]

The proposition, then, would be that today "the dictates of public conscience," in particular, should be interpreted as to include the requirement of avoiding at least unnecessary damage to the environment, by reference to today's widespread environmental awareness and concern throughout society.[42]

In this context, the following observations may be relevant.

a. Subjecting principles of customary law to a modern, liberal interpretation, *i.e.*, a time-related interpretation which takes account of changing and emerging values cherished by society, may be less objectionable than it would be in the case of treaty law. In the former case, State parties cannot claim so easily that they have accepted a precise obligation as formulated in a text, and that "that's it." Non-written customary law may indeed lend itself more easily to flexible and dynamic interpretation.

b. If this view is correct, it implies, with respect to environment protection, that the legal experts assembled at the 1991 Ottawa Conference would have been justified to observe—justified as far as customary law is concerned, that is—that "the application and development of the law of armed conflict have to take account of the evolution of environmental concerns generally."[43]

c. Relying on principles of customary law has the additional advantage, of course, that these are not conditioned by contractual *inter partes* limitations and *si omnes* clauses, since they are generally binding.

On the other hand, however, it should not be forgotten that customary principles of the law of armed conflict entail a number of intrinsic disadvantages and uncertainties. Like all principles of customary law, their contents are abstract and vague, and it is difficult to achieve agreement on specific and concrete entitlements or obligations to be derived from them.[44] In addition, in the case of customary *jus in bello*, belligerents may claim that they have arisen from identical treaty provisions—whatever the International Court of Justice may have said about the independent lives of treaty rules and customary principles arising from

them[45] and that, therefore, they would not concede to unlinking their contents from those of their conventional origins. Thus, even in the case of basic customary principles of the law of armed conflict, efforts to induce them with an environment-protective element will not be commonly appreciated, either in governmental or in academic circles.

Be that as it may, the experts assembled in 1992 in I.U.C.N.'s Workshop on Protected Areas, War and Civil Strife significantly appeared to be less assured of the correctness of the claim discussed here than their colleagues assembled a year earlier at the Ottawa Conference. The former group pleaded for improved international agreements which should include, among other rules to be newly adopted, a provision embodying.

> [r]ecognition that the accepted limits to the right of belligerents to choose means and methods of armed conflict must be interpreted to include the protection of the environment for present and future generations.[46]

4. (Non)-applicability of environment protection treaties concluded for times of peace in times of international armed conflict.

In many respects, the reply to the question whether, in times of armed conflict among belligerents, treaties concluded for times of peace have to be applied or may be terminated or suspended, is uncertain. Significantly, the question was circumvented in the Vienna Convention on the Law of Treaties, Article 73 of which merely provides that its provisions "shall not prejudge any question that may arise in regard to a treaty [. . .] from the outbreak of hostilities between States".[47]

This is not the appropriate place to enter into an in-depth analysis of the many problems and uncertainties involved in this matter in general. May it suffice here, therefore, to confine ourselves to the following basic observations.

According to the ancient theory on the effect of the outbreak of hostilities on the continued validity or applicability of treaties, the answer was simple: they did not survive. Indeed, "the farther back [into history] we go, the more sweeping and undiscriminating are the assertions that all treaties are abrogated by the outbreak of war between the contracting parties".[48] However, with the passage of time it was recognized that there could or should be an increasing number of exceptions to this proposition, although maybe it is not so much the rule which has changed as the nature of the treaties to which it applies.[49] Actually, in a nutshell, it seems to be justified to assume that the following synthesis of the modern theory is correct, although it must be recognized that substantial discrepancy in State practice, jurisprudence, and doctrine continues to prevail.[50]

a. Treaties especially concluded for armed conflict as well as dispositive treaties (like border treaties) can neither be annulled nor suspended.

b. Treaties of a political nature which are not intended "to set up a permanent condition of things," to which the belligerents alone are parties, will be (considered as being) annulled.[51]

c. With respect to all other treaties, no automatic abrogation takes place *ipso facto*, their abrogation or suspension being dependent on both the intention of belligerents and the nature of the treaty in question.

d. This implies that all treaties, except for those mentioned under a. and b. *supra*, to which the belligerents alone are parties, are not automatically—but can be—annulled or suspended as belligerents prefer.[52]

e. Multilateral treaties, to which both belligerents and neutral States are parties, cannot be annulled, but may be suspended as between the belligerents. This even applies, next to "contract-treaties," to "law-making treaties," in case "the necessities of war compel them to do so."[53]

However, even if this synthesis may be correct, a lot of uncertainties remain, taking the following considerations into account. Firstly, most authors merely refer to the effects of "war" on treaty relations, passing by the question whether the above-mentioned, or other, rules would also apply to international armed conflict falling short of war. Akehurst's remark that "unlike war, hostilities falling short of war do not generally terminate treaties between the hostile States"[54] merely begs the question, since the question today is no longer whether they are terminated, but whether they may be suspended. Secondly, no comments can be found on the question whether the right to suspend treaties as between belligerents should also be presumed to exist if suspension may impair the enjoyment of entitlements under these treaties by third (neutral) States.

The last-mentioned observation brings us back to the topic of environment protection: can an environment protection treaty, concluded for peace-time relations, to which both belligerents and neutral States are parties, be suspended as between belligerents if suspension may, but is not bound to, impair the full enjoyment of environment protection benefits by neutral States parties to that treaty?

The view, advocated by some governments[55] and experts,[56] that treaties relating to environment protection should not be allowed to be suspended, actually still belongs to the realm of *jus de lege ferenda* rather than to that of *lex lata*. Furthermore, the conspicuous fact that not one single environment protection agreement concluded for times of peace embodies a provision ensuring its continued applicability in times of international armed conflict,[57] only serves to increase the uncertainty about the potential applicability of "peace-time" environment protection treaties in times of international armed conflict.

B. Relations between belligerents and third (neutral) States

The treaties outlining the law of neutrality do not embody any provision related *expressis verbis* to environment protection. In this regard, one could merely refer to

general provisions like the respective Articles 1 of Hague Conventions V and XIII,[58] according to which "the territory of neutral Powers is inviolable," and belligerents are bound "to abstain, in neutral territory or neutral waters, from any act which would, if knowingly permitted by any Power, constitute a violation of neutrality."[59]

But also in this case, it should be recalled that these treaties, concluded around the turn of the century, were drafted at a time when ecological awareness was non-existent. Indeed, it was

> far beyond the comprehension of those engaged in the 1899 and 1907 legislative process that the environment as such could be made the object of an attack [...] or might incur long-term and significant damage resulting from the use of conventional weapon-systems.[60]

Consequently, efforts aimed at a retroactive induction of an environmental connotation into their rules are disputable.[61] In addition, one should realize that even if such a dynamic interpretation were justifiable, it would merely concern the prohibition of belligerent acts which cause *demonstrable* damage,[62] inflicted *inside* the territory of neutral States.

As regards treaties concluded between a belligerent and neutral States, it follows from the principles of the law of neutrality that the law of peace, including treaties relating to environment protection, continues to apply. As a question of principle, indeed "there is no reason why such treaties should be affected in any way by the war,"[63] let alone by hostilities falling short of war. However, as explained above, belligerents may, if the necessities of armed conflict so require, suspend the applicability of multilateral treaties *inter se*. Nonetheless, this would presumably not be the case if such suspension *inter se* would impair the enjoyment of rights under these treaties by neutral States, albeit that this effect must be discernible or demonstrable, which, in the case of environment protection treaties, may not always be possible at the present state of scientific knowledge.[64]

Therefore, as far as—but only as far as—demonstrable damage is concerned, prohibitions arising from environment protection treaties to which both belligerents and neutral States are parties would continue to apply. They embody prohibitions to cause transboundary environmental damage, prohibitions to cause damage to particular parts, objects or assets of the environment, and prohibitions to employ specific toxic compounds or disperse particular toxic waste. However, before jumping to promising conclusions in this context, one should take the following observations into account.

1. Rules aimed at protecting the environment *in general* are only found in supportive non-binding instruments like the Stockholm Declaration, the World Charter of Nature, and the Rio Declaration.[65] Treaties concluded for times of peace only protect *particular* parts, objects or assets of the environment—like the ozone

layer, particular territories, seas or ocean regions, or particular species—or prohibit the use or disposal of *particular* toxic substances.

2. As we have seen, the protective merits of these treaties in times of international armed conflict are far from clear and indisputable. Significantly, the example of the new Law of the Sea Convention does not provide any guidelines on how to solve problems arising from the apparent contradiction between, on the one hand, the right of belligerents to use the oceans for military purposes and, on the other, its rules on the prevention, reduction, and control of marine pollution.[66]

In conclusion, it would certainly go too far to uphold the thesis that the law of peace and the law of neutrality, as far as they may be relevant to environment protection in the relationship between belligerents and neutral States, would, by any objective standard, provide reliable protection of the environment in times of international armed conflict.

II. Non-international Armed Conflict

Nothing much innovative can be said on this aspect of the issue, in view of the following observations. There is simply no provision, either in the 'Hague' and 'Geneva' law, or elsewhere, specifically dealing with environment protection in the course of non-international armed conflict.[67] Additional Protocol II of 1977, which deals with non-international armed conflict, does not even mention the subject. Indeed, a proposal submitted to the Diplomatic Conference to introduce into Protocol II a provision analogous to Article 35, paragraph 3, and Article 55 of Protocol I was explicitly rejected.[68]

Thus, only the prohibition of attacks upon installations containing dangerous forces, the prohibition of starvation of civilians, and other provisions aimed at protecting the civilian population could be indirectly relevant, but the same relativizing observations as made above with respect to analogous provisions pertaining to international armed conflict apply here.

Be that as it may, for governments engaged in a non-international armed conflict, environment protection rules belonging to the law of peace continue to apply—but only those. As regards insurgent factions engaged in such a conflict, there is nothing to be gained or lost from existing rules of law in this respect, apart from the potential applicability of the above-mentioned non-specific provisions of Additional Protocol I—their applicability being dependent on their having entered into force for both the government involved (by ratification) and the insurgents (by having made a declaration to observe them)—international law does not address insurgents at all.

III. Conclusions on the Protective Merits of Existing Law

It seems that one cannot but come to the conclusion that protection of the environment in times of armed conflict is insufficiently assured by existing rules of international law.

1. The relevant principles and rules of *jus in bello*, both in treaties and customary law, provide for partial and defective protection only, and to the extent that they do provide protection, substantial disagreement about their correct interpretation prevails.

2. Belligerents enjoy substantial freedom to suspend the operation of relevant treaties belonging to the law of peace, to which they are parties, *inter se*.

3. Substantial uncertainty also prevails as regards the possibility of ensuring that belligerents will, in practice, observe their obligation to prevent impairment of neutral States' rights emanating from such treaties as well as customary law.

Actually, even the most optimistic and dynamic interpretation of relevant existing principles and rules could not justify the conclusion that one can be assured that existing law on the protection of the environment in times of international armed conflict is adequate. It can not and will not suffice to continue to rely on calls for a more consistent implementation of existing rules.

Hence, the proposition that additional legislative activity, aimed at ensuring a better protection of the environment in times of armed conflict, should not be called for appears to the present commentator, on closer analysis, not to be tenable.

Amendments of existing rules and adoption of additional ones are indispensable to achieve this purpose.

Notes

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1. U.N. Doc. A/C.6/46, SR. 18 (1991) at 9 and 14; and Morris, *Protection of the Environment in Wartime: The U.N. General Assembly Considers the Need for a New Convention*, 27 Int'l L. 780 (1993).

2. May it suffice, at the outset, just to state for the moment that many authors on the subject take this view.

3. The term "belligerents" is used here as referring to "parties to an international armed conflict", not in the traditional sense of "parties to a war". *See also* n. 38, *infra*.

4. Protocol I Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts, 16 I.L.M. 1391-1441 (1977).

5. Kalshoven, *Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts; the Diplomatic Conference, Geneva, 1974-1977 (Part II)*, 9 Neth. Y.B. Int'l L. 130, n. 56 (1978).

6. Bothe, *The Protection of the Environment in Times of Armed Conflict. Legal Rules, Uncertainty, Deficiencies and Possible Developments* 4, paper submitted at the Ottawa Conference on the Use of the Environment as a Tool of Conventional Warfare (9-12 July 1991).

7. *See* Green, *The Environment and the Law of Conventional Warfare* 5, n. 11, paper submitted to the Ottawa Conference, n. 6 *supra*.

8. Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which may be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (1981), U.N. Doc. A/CONF.95/15; U.K.T.S. Misc. 23 (1981).

9. Emphasis added.

10. This observation should not be understood as a criticism, but as a fact. Significantly, at the 1991 London Round Table Conference, Gasser, the Legal Adviser to the Directorate of the ICRC, although speaking in his personal capacity, put it this way: "[p]erhaps the ICRC does not look so much at the environment as such but more at the environment in the context of and around human beings. As you know the Geneva Conventions are geared essentially to the protection and safeguarding of human beings in times of armed conflict." And, after referring to the environmentally relevant provisions of 'Geneva' Law, he added: "[t]hese prohibitions protect the environment for *human beings* -when both civilians and combatants are affected". His additional question: "[b]ut do not most of the serious attacks on the environment inevitably affect mankind?", should be answered affirmatively, but does not alter the intrinsic limitation of the 'Geneva' law addressed here. *See* Gasser during the London Round Table Session I, *in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR: A 'FIFTH GENEVA' CONVENTION ON THE PROTECTION OF THE ENVIRONMENT IN TIMES OF ARMED CONFLICT (Plant ed. 1992) at 111. For further comments by the present commentator on this aspect of 'Geneva' law, *see* Verwey, *Protection of the Environment in Times of Armed Conflict: In Search of a New Legal Perspective*, 8 Leiden J. Int'l L. sec. 5 (1995).

11. The principle *in dubio mitius* implies that if the meaning of a term or phrase is ambiguous or at least not entirely clear, that meaning is to be preferred which is the least onerous or involves the least general restrictions for the party assuming an obligation. The principle *eiusdem generis*, which is closely related to the principle *expressio unius est exclusio alterius*, implies that the scope of a non-specific term or phrase is confined by the more restrictive scope of a similar specified term or phrase relating to the same subject matter elsewhere in the same legal instrument. *See* OPPENHEIM, 1 INTERNATIONAL LAW (Lauterpacht ed. 1974) at 953-54. For an illustrative example of the application of the principle *eiusdem generis* to the law of warfare, in this case implying a restrictive interpretation of the prohibition of the use of chemical weapons under the 1925 Geneva Gas Protocol, *see* VERWEY, RIOT CONTROL AGENTS AND HERBICIDES IN WAR (1977) at 238-39.

12. *See* Falk, *The Environmental Law of War: an Introduction, in* ENVIRONMENTAL PROTECTION AND THE LAW OF WAR (Plant ed. 1992) at 86.

13. *Id.*, at 86 *et seq.*

14. *See* Verwey, *supra* n. 10, section 5.

15. Bouvier, *Protection of the Natural Environment in Time of Armed Conflict*, 285 Int'l Rev. of the Red Cross 574 (1991).

16. *See* Lijnzaad & Tanja, *Protection of the Environment in Times of Armed Conflict: the Iraq-Kuwait War*, XL Neth. Int'l L. Rev. 181 (1993). *See also* Kiss, *Les Protocols Additionnels aux Conventions de Genève de 1977 et la Protection de Biens de l'Environnement, in* Etudes et Essais sur le Droit International Humanitaire en l'Honneur de Jean Pictet 186 (1986).

17. U.N. Doc. A/47/328, at 5.

18. Convention Concerning the Protection of the World Cultural and Natural Heritage (1972), 11 I.L.M. 1358 (1972).

19. I.U.C.N./I.C.E.L., *Protection of Cultural and Natural Heritage Sites in Times of Armed Conflict*, 23 Envt'l Pol. and L. 259 (1993).

20. *See* VERWEY, *supra* n. 11, at 73-158, 239 *et seq.*

21. Convention on the Prohibition of the Use of Environmental Modification Techniques (1977), 1108 U.N.T.S. 151. For background information *see* Juda, *Negotiating a Treaty on Environmental Modification Warfare: The Convention on Environmental Warfare and its Impact Upon Arms Control Negotiations*, 32 Int'l Org. 975 *et seq* (1978).

22. U.N. Doc. A/46/141 (1991). Subsequently, when introducing the item in the Sixth Committee, Jordan emphasized that the scope of this item should encompass "greater environmental protection, in general, in time of armed conflict". Hence, the title of the item was later changed, correctly so, into "Protection of the Environment in Times of Armed Conflict". *See* U.N. Doc. A/C.6/46/SR.18 (1991).

23. *Cf.* BOTHE, PARTSCH & SOLF, NEW RULES FOR VICTIMS OF ARMED CONFLICT (1982) at 347.

24. Thus, according to Goldblat, the ENMOD Convention "is only a half-measure because of the conditional character of its prohibitions. It tolerates hostile uses of environmental modification techniques which produce destructive effects below a specified threshold." *See* Goldblat, *Legal Protection of the Environment Against the Effects of Military Activities* 22, No. 4 Bulletin of Peace Proposals 5 (1991).

25. *See* Blix, *Arms Control Treaties Aimed at Reducing the Military Impact on the Environment, in* ESSAYS IN INTERNATIONAL LAW IN HONOUR OF JUDGE MANFRED LACHS (Makarczyk ed. 1984) at 710.

26. *See* Lijnzaad & Tanja, *supra* n. 16, at 188.

27. Declaration of the United Nations Conference on the Human Environment (Stockholm, 1972), U.N. Doc. A/CONF.48/14.

28. World Charter for Nature (1982), UNGA Res. 37/7.

29. More abstract provisions, like the principle of proportionality, the prohibition of indiscriminate attacks, or the 'Martens Clause', which have developed into fundamental principles of customary *jus in bello*, will be considered under Section 3, *infra*.

30. Convention Respecting the Laws and Customs of War on Land (Hague Convention IV, 1907), Annex (the 'Hague Regulations'), U.K.T.S. 9 (1910), Art. 23, para. 1(g); Geneva Convention for the Amelioration of the Condition of the Wounded and Sick in Armed Forces in the Field (Geneva Convention I, 1949), 75 U.N.T.S. 31, Art. 50; and Geneva Convention Relative to the Protection of Civilian Persons in Time of War (Geneva Convention IV, 1949), 75 U.N.T.S. 387, Art. 53.

31. Additional Protocol I (1977), *supra* n. 4, Art. 54, para. 1.

32. *Id.*, Art. 54, paras. 1-5.

33. *Id.*, Art. 56.

34. *See, e.g.*, Hague Regulations, Art. 23, para 1(g), and Geneva Convention IV, Art. 53. Significantly, at the Ottawa Conference "[t]here was a shared view that wanton destruction of the environment with no legitimate military objective is clearly contrary to existing international law". *See also, e.g.*, "the rule [. . .] on the destruction of enemy property not imperatively demanded by the necessities of war, can have direct implications for the protection of the environment". *See* the Chairman's Conclusions, points 5 and 6.

35. *See, e.g.*, Additional Protocol I, *supra* n. 4, Art. 56, para. 2.

36. *Id.*, Art. 56.

37. *See, e.g.*, Hague Convention IV, Art. 2. The traditional *si omnes* clause implies that the treaty in question is applicable only in wars in which all belligerents involved are parties to that treaty. These conditions no longer play a role, of course, for those provisions which have developed into generally binding rules of customary law.

38. As regards the term "war", the international community learned a bitter lesson when belligerents between the two World Wars showed little hesitation in escaping from their obligation, under the Covenant of the League of Nations and the 1928 Paris Pact, not to resort to "war", by simply titling armed aggression anything else but war. Thus, the Japanese Government justified its invasion in Manchuria in 1931 by claiming this was not an act of war, but merely "an armed international incident". *See* RÖLING, VOLKENRECHT EN VREDE [INTERNATIONAL LAW AND PEACE] 158 (1985).

39. Falk, *Environmental Warfare and Ecocide, in* THE VIETNAM WAR AND INTERNATIONAL LAW 295 (Falk ed. 1976).

40. In this respect, the Group of Experts assembled at the Munich Meeting observed "that the current recognition that the environment itself is an object of legal protection in times of armed conflict implies that traditional perceptions of proportionality and military necessity have become obsolete." *See* Final Report, at 2, n. 3, point 2. According to Baker, new "environment-specific provisions [. . .] may not be necessary in all circumstances. This is in part because five long-standing precepts of armed conflict provide potentially far-reaching protection for the environment in times of armed conflict without specifically addressing environmental concerns: the limitation principle, military necessity, discrimination (*i.e.*, between military and civilian objects), preventing unnecessary suffering, and proportionality". However, she also expresses doubts as to whether such general customary principles of the law of warfare can provide for adequate protection of the environment. *See* Baker, *Legal Protection for the Environment in Times of Armed Conflict*, 33 Vir. J. Int'l L. 359, 360-367 (1993).

41. *See* Additional Protocol I, *supra* n. 4, Art. 1, para. 2.

42. Bothe holds: "[i]n our time, the 'dictates of public conscience' certainly include environmental concern." Bothe, *supra* n. 6, at 3. The experts assembled at the Ottawa Conference partly adopted Bothe's view, concluding that "[t]he customary laws of war, in reflecting the dictates of public conscience, now include a requirement to avoid *unnecessary* damage to the environment" (emphasis added). *See* the Chairman's Conclusions, point 9.

43. *Id.*, point 9.

44. In this regard, Goldblat correctly observes, with respect to the reservations in the text of Additional Protocol I, that in several important instances "derogation from the prohibitions may be made whenever it can be justified by military necessity. However, the required justification is bound to be subjective, because there is no way of balancing such unquantifiable notions as [unnecessary] human suffering and the demands of war. In practice, this provision could amount to passing to commanders in the field the responsibility for deciding in the heat of battle what is lawful and what is not". Goldblat, *Protection of the Natural Environment Against the Effects of Military Activities: Legal Aspects* 4, paper submitted to the Ottawa Conference on the Use of the Environment as a Tool of Conventional Warfare (9-12 July 1991).

45. In the *Nicaragua Case*, the I.C.J. took the position that "even if a treaty norm and a customary norm . . . were to have exactly the same content, this would not be a reason for the Court to take the view that the operation of the treaty process must necessarily deprive the customary norm of its separate applicability". Moreover, with respect to the prohibition of armed force and the right of self-defense, the Court noted that the contents were no longer identical, observing that "customary international law continues to exist alongside treaty law. The areas governed by the two sources of law thus do not overlap exactly, and the rules do not have the same content. This could also be demonstrated for other subjects, in particular for the principle of non-intervention." *Case Concerning Military and Paramilitary Activities in and Against Nicaragua* (Merits), 1986 I.C.J. Rep. 14, paras. 175 and 176.

46. *Parks for Life*, Report of the IVth World Congress on National Parks and Protected Areas 97 (McNeely ed. I.U.C.N., 1993).

47. *Cf.* 1966-II Yearbook of the ILC 267.

48. MCNAIR, THE LAW OF TREATIES 698 (1986). *See also* OPPENHEIM II INTERNATIONAL LAW 302 (Lauterpacht ed. 1972); and FRANÇOIS, GRONDLIJNEN VAN HET VOLKENRECHT [BASICS OF INTERNATIONAL LAW] 349 (1957).

49. AKEHURST, A MODERN INTRODUCTION TO INTERNATIONAL LAW 138 (1980).

50. *See* OPPENHEIM, *supra* n. 48, at 302-305.

51. *Id.*, at 303. *See also* MCNAIR, *supra* n. 48, at 703.

52. *See* OPPENHEIM, *supra* n. 48, at 303.

53. *Id.*, at 304. *See also* FRANÇOIS, *supra* n. 48, at 349.

54. *See* AKEHURST, *supra* n. 49, at 139.

55. During the first debates in the Sixth Committee on the 'Jordanian item', only *some* delegations, indeed, suggested that the rules of international law concerning protection of the environment "may not be suspended in times of war". *See* Morris, *supra* n. 1, at 778.

56. Bothe, *supra* n. 6 at 7; and the Chairman's Conclusions, *supra* n. 42, point 11.

57. Possibly except for the 1972 Paris Convention, according to the Legal Experts of I.U.C.N. *Cf.* text accompanying n. 24.

58. Convention Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land (Hague Convention V), 1907, 36 Stat. 2310; T.S. 540; and Convention Concerning the Rights and Duties of Neutral Powers in Naval War (Hague Convention XIII), 1907, 36 Stat. 2415; T.S. 545.

59. For a treatise on the (potential) relevance of the law of neutrality to environment protection, *see* Bothe et al., *Protection of the Environment in Times of Armed Conflict*, Report to the Commission of the European Communities 49, SJ/110/85.

60. *See* Lijnzaad & Tanja, *supra* n. 26, at 172-173.

61. *See* Bothe *et al.*, *supra* n. 59, at 8.

62. *See id.*, Section. 1.A.1.

63. *See* MCNAIR, *supra* n. 48, at 728. Similarly, the Group of Experts assembled at the Munich Meeting drew "attention to the fact that the rules of international environmental law continue to apply between parties to an armed conflict and third parties." *See* Final Report, at 2, n. 3, point 6.

64. *See* Section 1.A.1, *supra*.

65. *Cf., e.g.*, Stockholm Declaration, *supra* n. 27, Principles 6, 7 and 21; World Charter for Nature, *supra* n. 28, Principle 11.

66. The 1982 Law of the Sea Convention principle that "[t]he high seas shall be reserved for peaceful purposes" (Art. 88), and that "[t]he Area shall be open to use exclusively for peaceful purposes by all States" (Art. 141), is not intended to exclude military activities, neither in times of peace nor in times of armed conflict. In particular, States which claim to have been attacked and States participating in military operations ordered, recommended or sanctioned by competent U.N. organs, can use the oceans for what, by any normal standard, would be called 'belligerent' purposes. The question raised here, in any case, would probably have to be answered along the lines suggested by the experts assembled at the Ottawa Conference: "[a]t the outset, the view was clearly expressed that the [specific] law of armed conflict took precedence over the general law of the environment during wartime". *See* the Chairman's Conclusions, *supra* n. 42, point 11.

67. *Cf.* Marino during the London Round Table Session I, *in* Plant, *supra* n. 10, at 108.

68. *See* Bouvier, *supra* n. 15, at 576.

Chapter XXXVII

Comment: Developing the Environmental Law of Armed Conflict

Professor Bernard H. Oxman*

My reaction to the excellent papers presented today is quite simple: I agree with much of what was said.

Since Ivan Shearer has helpfully summarized Glen Plant's classifications of the various positions on the issue,[1] let me say that the views I expressed to the United States Senate in 1991 place me mainly in the first camp.[2] But I am willing to find practical ways to accommodate the objectives of those in the second camp. And I am ready to be persuaded by partisans of the third camp on specific points.

That, I suppose, makes me a partisan of what Lucius Caflisch called the "Goldblat Doctrine," namely "to build upon what exists already and . . . show a certain realism in doing so."[3] We should bear in mind that almost 20 years ago, the Stockholm International Peace Research Institute study already warned that military disruption of the environment is exceedingly difficult to limit or control by legal instruments.[4]

In this regard, I am not sure that all of the speakers on the panel would attach as much significance as I do to three points:

1) Because armed conflict is always bad for the environment, any text attempting to deal with the full problem of environmental restraints on armed conflict in a simple and sweeping peremptory fashion is likely to force a choice between the obvious and the fanciful.

2) We must be cautious about perverse effects. The practical impact of a particular protective legal rule may be to increase the likelihood of undesirable damage, for example by encouraging the militarization of a site that would not otherwise have been a profitable object of attack.

3) We should not confuse the *jus in bello* with the *jus ad bellum*. Whatever the intent, I believe the fourth camp cannot easily satisfy these criteria. For example, let me quote from Sebia Hawkins' comments on behalf of the Greenpeace position before the American Society of International Law in 1991:

> Greenpeace believes that a Geneva Convention on the Protection of the Environment in Time of Armed Conflict would provide an ideal vehicle for persuading nations that modern warfare exacts too high of a price on the environment . . . and that consequently, warfare is an untenable proposition for conflict resolution.[5]

This is clearly the stuff of public education and the *jus ad bellum*, but not the *jus in bello*. To prohibit environmental damage is to prohibit armed conflict, and thus not only to alter the *jus ad bellum* but to contradict the underlying thesis of the United Nations Charter about the means necessary to maintain and restore international peace and security.[6] If Elisabeth Mann-Borgese is correct that "the worst of all polluters is war,"[7] then we should be seeking to strengthen the UN Charter system for deterring war, not redrafting the Kellogg-Briand Pact.[8]

As to the second camp, let me distinguish between two issues. The first issue concerns the customary law status of various treaty rules dealing with the law of armed conflict. The debate engages a few controversial provisions of the 1977 Additional Protocols, including Articles 35(3) and 55 of Protocol I.[9] I think a disservice is done to the credibility of international law when writers conclude that these provisions are declaratory of customary law without considering the impact, for example, of the statements of U.S. Government officials[10] or the French reservation in connection with its signature of the 1981 Conventional Weapons Convention.[11] But on the other hand, I can imagine more promising strategies for influencing the interpretation of Additional Protocol I than rejecting the Protocol and relying on a strict consensual view of customary law.

The second issue concerns the effect of environmental treaties that do not deal with the law of armed conflict as such. Here a double leap is sometimes made. First, the treaty rule is stated to be declaratory of a similar or even broader rule of customary law. Second, the principle of environmental law so derived is stated to be applicable without qualification under all circumstances, including armed conflict—and perhaps even to be non-derogable because it is an obligation *erga omnes* that protects a basic public interest of all humanity.

Articles 192 and 194 of the 1982 United Nations Convention on the Law of the Sea are sometimes invoked in this process.[12] Article 192 declares, "States have the obligation to protect and preserve the marine environment." Article 194 requires States to "take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment."

Article 192 was the very first, and remains the only, statement of a comprehensive and unqualified environmental duty of States in a widely ratified treaty. The Article 192 that I helped to negotiate was the principled foundation for a much more detailed body of rules that follow it, explicating its meaning and effect. Not one of those rules even mentions armed conflict. Quite to the contrary, Article 236 declares that the environmental provisions of the Convention do not apply to warships or military aircraft, subject to a more flexible duty to "ensure, by the adoption of appropriate measures not impairing operations or operational capabilities . . ., that such vessels or aircraft act in a manner consistent, so far as is reasonable and practicable, with this

Convention." Participants in this Symposium might regard this formulation as a rough peacetime analog of the necessity and proportionality principles.

The Article 192 encountered in some of the literature on the subject of environmental protection during armed conflict (but not the papers presented on this panel) is treated as evidence of an unqualified environmental duty under customary law applicable to all of the environment, not just the marine environment. This is something that neither the Stockholm Conference in 1972 nor the Rio Conference in 1992 achieved even in a non-binding instrument. Article 192 is extracted from its detailed context, and set loose as an autonomous principle inviting a process of deductive reasoning informed by the policy preferences of the author. The principle, as such, is declared to restrain all armed forces in the event of armed conflict, without regard to the necessity or proportionality principles, while Article 192 itself does not have this effect even in time of peace.

The problem here is that the argument is being pressed too far. A basic difficulty with such a move is aptly stated by Justice Feliciano: "invocation of the general principles reflected in Articles 192 and 194 of the 1982 Convention needs to be complemented by reference to applicable principles and norms of the law of war."[13]

I agree that general environmental law and environmental treaties are relevant to the law of armed conflict. They inform our understanding of the most general rules of the law of armed conflict, such as the Martens Clause.[14] They also inform our understanding of many specific rules such as those designed to protect civilians, civilian objects, and property. But absent a clear indication of a contrary intent, they do not limit the rights and duties of States under Chapter VII of the U.N. Charter or override the basic principles of the law of armed conflict itself, in particular the principles of necessity and proportionality. I think the U.N. General Assembly got it right when it relied on those principles to declare that "destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law."[15]

There are absolute limitations on armed conflict that are not subject to the necessity and proportionality principles, although typically they are in fact influenced by those principles. Such absolute limitations are quite carefully negotiated and circumscribed. That is the explanation for the limited scope of both the ENMOD Convention[16] and Article 35(3) of the 1977 Additional Protocol I, not any general lack of sensitivity to environmental values. It simply stretches credulity to maintain that environmental treaties not negotiated with a view to regulating armed conflict also impose absolute limitations not subject to the necessity and proportionality principles. For similar reasons, I do not think it is quite as easy to transport Article 194 of the Law of the Sea Convention or other environmental rules in unqualified form into the rule declaring neutral territory inviolable as Professor Bothe,[17] Justice Feliciano,[18] and some others seem to believe.

My difficulties with some efforts to apply general environmental law and treaties directly to armed conflict are largely related to my concerns for the integrity and credibility of international law generally, and the law of armed conflict in particular. But there is also another reason for caution. General environmental law is still in its infancy, and needs to grow. It is hard enough to negotiate useful general environmental treaties without inviting the military organizations of the world to worry about the effect of those proposed treaties on the law of armed conflict. Some arguments being advanced about the effect of general environmental treaties on armed conflict are more likely to impede the development of general environmental law than to achieve any significant additional protection for the environment in the event of armed conflict.

This does not mean the law of armed conflict should ignore useful ideas from other branches of international law. Environmental law, including the Law of the Sea Convention, makes clear that the environmental duties of a State include activities in its own territory. Dieter Fleck points out that the venerable and time-tested law of the sea principle of "reasonable regard" or "due regard" for the interests of others influenced the formulation of the rule in Section 44 of the 1994 San Remo Manual that "[m]ethods and means of warfare should be employed with due regard for the natural environment."[19] John McNeill clearly demonstrated the command and control implications of this principle when he stated that "the world community has every right to expect that concerns for the well-being of the environment will be taken into account by those planning and executing military operations."[20] Implicit in his remarks, and in Conrad Harper's on Monday, was another important, often respected, but rarely articulated implication of the "due regard" principle: Consult your lawyer early and often.

Just as many substantive maritime rules and treaties build upon the "due regard" principle in order to provide more specific guidance, so we can imagine a similar gradual development in the law of armed conflict rooted in the "due regard" principle. Thus, for example, the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict prohibits both militarization and attack.[21] Why not use a similar approach to protect uniquely valuable parts of the natural heritage from destructive attack? The type of treaty I have in mind would require the State in control to avoid militarizing or otherwise making designated environmentally sensitive sites inviting targets and, in this context, would prohibit attack completely.[22]

The very process of thinking about what would be needed to implement this idea would have the felicitous effect of forcing the mind to focus on the practical issues that must inform the law of armed conflict. We would need criteria for choosing sites that emphasize unique environmental values and exclude substantial military implications. We would need strong international review procedures for designating sites and would need to consider according each State

the right to reject designation of a site in a timely fashion. If the object is to prohibit attack entirely on the grounds that there are no activities or facilities at the site that may make it a tempting target, then we need to consider some process of verification.

I have no doubt that some military planners in the room are already worrying about the operational implications of this idea. That is their job. But we may be able to start developing a list of places whose extraordinary environmental sensitivity is such that, even if the place were militarized by an adversary, a decision regarding whether and how to attack would be difficult. In that case, demilitarization of a site may be a more balanced result than unilateral restraint. It helps ensure that both sides bear the burden of protecting the area, and that environmentally sensitive areas are not used as a practical sanctuary for military assets.

I do not suggest that all of this would be easy. We could start, for example, by considering only those areas on land that are already designated parks or refuges where most ordinary peacetime activity is already prohibited or very strictly limited to scientific research and recreation. We might defer dealing with maritime areas because they pose special problems regarding international navigation and communication. In this regard, as in many others, I think the balance of the Antarctic Treaty[23] is a useful source of general inspiration, although what I have in mind are of course very much smaller, less remote and more diverse areas.

Finally, let me add my voice to that of Professor Meron[24] and others who are frustrated by the state of the law with respect to non-international armed conflict. Again, I believe that attempts to incorporate general environmental law in unqualified form will not work, and that it is better to look to the law of armed conflict for the necessary qualifications than it is to look to the environmental norms themselves, or to the law of treaties, for those qualifications. But it does seem to me that, at least with respect to the designation of unique environmental sites that may not be made inviting objects of attack, and that accordingly may not be attacked, there may be some possibility for avoiding the distinction based on the type of armed conflict because use of the area would be severely restricted in times of peace as well.

In sum, I believe a consensus can be built around Paul Szasz' aptly stated view that nature is no longer fair game in mankind's conflicts.[25] We should seek practical ways to give effect to that principle, including those outlined by Hans-Peter Gasser.[26] That, in itself, would be no mean achievement.

Notes

*Professor of Law, University of Miami School of Law.

1. Shearer, *The Debate to Assess the Need for New International Accords*, *supra* Chap. XXXIV at 546.

2. Oxman, *Environmental Warfare*, 22 Ocean Dev. Int'l L. 433 (1991) (based on a statement of July 11, 1991 before the Gulf Protection Task Force, Committee on the Environment and Public Works, United States Senate).

3. *See* Baker, *Legal Protections for the Environment in Times of Armed Conflict*, 33 Va. J. Int'l L. 351, 380 n.144 (1993).

4. Stockholm International Peace Research Institute, Ecological Consequences of the Second Indochina War 88-9 (1976).

5. Hawkins, *The Gulf War: Environment as a Weapon*, 1991 Proc. 85th Ann. Meeting Am. Soc'y Int'l L. 214, 220-21 (1991).

6. *See* U.N. CHARTER ch. VII.

7. Mann-Borgese, *The Protection of the Marine Environment in the Case of War*, *in* THE FUTURE OF THE INTERNATIONAL LAW OF THE ENVIRONMENT (Dupuy ed. 1985) at 105, 106.

8. Treaty Providing for the Renunciation of War as an Instrument of National Policy, Aug. 27, 1928, 46 Stat. 2343, 2 Bev. 732; 94 L.N.T.S. 57.

9. Protocol I Additional to the 1949 Geneva Conventions and Relating to the Protection of Victims of International Armed Conflicts, June 8, 1977, 16 I.L.M. 1391 [hereinafter Additional Protocol I].

10. *See* Matheson, *The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions*, 2 Am. Univ. J. Int'l L. & Policy 419 (1987); McNeill, *Protection of the Environment in Times of Armed Conflict: Environmental Protection in Military Practice*, *supra* Chap. XXXIII at 536.

11. ROBERTS & GUELFF, DOCUMENTS ON THE LAWS OF WAR (2d ed. 1989) at 488.

12. United Nations Convention on the Law of the Sea, *opened for signature* Dec. 10, 1982, U.N. Doc. A/CONF.62/122 (1982), *reprinted in* UNITED NATIONS, OFFICIAL TEXT OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA WITH ANNEXES AND INDEX, U.N. Sales. No. E.83.V.5 (1983), and Senate Treaty Doc. 103-39 (1994).

13. Feliciano, *Marine Pollution and Spoilation of Natural Resources as War Measures: A Note on Some International Law Problems in the Gulf War*, 14 Hous. J. Int'l L. 483, 498 (1992).

14. The original formulation of the Martens Clause appeared in the Preamble to the 1899 Hague Convention II:

> Until a more complete code of the laws of war is issued, the high contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilised nations, from the laws of humanity and the requirements of the public conscience.

ROBERTS & GUELFF, *supra* n. 11, at 4. The idea is repeated in the 1907 Hague Convention IV, each of the 1949 Geneva Conventions, both 1977 Additional Protocols, and the 1981 Conventional Weapons Convention.

15. Protection of the Environment in Times of Armed Conflict, G.A. Res. 47/37, U.N. GAOR, 47th Sess., at 2, U.N. Doc.A/RES/47/37 (1992).

16. Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, May 18, 1977, 31 U.S.T. 333.

17. Bothe, *The Protection of the Environment in Time of Armed Conflict: Legal Rules, Uncertainty, Deficiencies & Possible Developments*, 34 Germ. Y.B. Int'l L. 54, 59-62 (1991).

18. Feliciano, *supra* n. 13, at 497-98.

19. Fleck, *Protection of the Environment During Armed Conflict and Other Military Operations: The Way Ahead*, *supra*, Chap. XXXII at 530.

20. McNeill, *supra* n. 10.

21. Convention for the Protection of Cultural Property in the Event of Armed Conflict and Protocol, May 14, 1954, 249 U.N.T.S. 215.

22. The idea finds support in article 58(c) of Additional Protocol I, but the procedure contemplated differs from that set forth in Article 60 of that Protocol.

23. Antarctic Treaty, Dec. 1, 1959, 12 U.S.T. 794; 402 U.N.T.S. 71.

24. Meron, *Comments for the Panel on Protection of the Environment During Non-International Armed Conflicts*, Chap. XX, at 353.

25. Szasz, *The Gulf War: Environment as a Weapon*, 1991 Proc. 85th Ann. Meeting Am. Soc'y Int'l L. 214, 217 (1991).

26. Gasser, *supra*, Chap. XXXI at 528-30.

Chapter XXXVIII

Panel Discussion: The Debate to Assess the Need for New International Accords

Professor Jack Grunawalt, Naval War College: I think a fitting way to commence this morning's work is to recollect last evening. I would like to have all of you join me, if you would, for a round of applause for Blanche and Howard Levie in appreciation for the very gracious hospitality bestowed by them in their home last night. [Applause]

Our plan of action for this morning is to hear from our major presenters, and then following the break, turn it over to our commentators who will conclude the formal part of the session. Thereafter, we will entertain discussion from the floor.

In keeping with our practice for the last three days, we have placed the biographies of our panelists in front of you for your individual perusal. But I did want to acknowledge an old friend and comrade in arms, Colonel Jim Terry, U.S. Marine Corps (Ret.), now Deputy Director of the Office of Hearings and Appeals, United States Department of Interior, who will be our moderator for this panel. As you know, Jim brings a wealth of background in these general matters to us. As most of you are aware, Jim was the Legal Advisor to the Chairman, Joint Chiefs of Staff in his final military incarnation. Jim, welcome back to the Naval War College.

Colonel James P. Terry, U.S. Marine Corps, (Ret.), U.S. Department of the Interior: Well, thank you very much for including a member outside the Department of Defense. This is truly a very nice break from oil and gas law and mining law cases. I was telling some of the folks this morning that I heard a case in Flagstaff a couple of weeks ago where the issues were literally beyond me. Getting up to speed in a new area of law is very difficult at times.

The subject of our last discussion of this Symposium is an assessment of the need for new international accords to protect the environment during armed conflict. We are blessed this morning with some of the true experts in the field. I had the good fortune to work with Dr. Hans-Peter Gasser not long ago in Singapore and had the opportunity to hear many of the insights and observations he has brought to this area; certainly they are well worth hearing. As you know, Dr. Gasser is the senior legal advisor to the International Committee of the Red Cross (ICRC) in Geneva. He has been one of the international community's strongest and most ardent advocates for ratification of Additional Protocol I of the 1949 Geneva Conventions. I would urge our strong attention to his words.

Our second presenter is Dr. Dieter Fleck. Dr. Fleck is the Director of the International Agreements and Policy Arm of the Ministry of Defense in the Federal Republic of Germany. Prior to that, he held a number of senior positions in the German Government including Services Director of the International Legal Affairs Office, the Ministry of Defense, collaborator on Inter-German Affairs in the Chancellor's Office and Legal Advisor to the German Armed Forces.

Our third presenter this morning will be Mr. Jack McNeill, a good friend of all of ours from the Department of Defense. Jack is the Senior Deputy General Counsel for International Affairs and Intelligence. In this capacity, Jack manages all aspects of the Department's international activities including international peacekeeping, operational matters, overseas base agreements, status of forces matters, security assistance and intelligence oversight.

Our final presenter is Professor Ivan Shearer. Ivan is the Challis Professor of International Law in the University of Sidney and is Professor Emeritus and former Dean of the Faculty of Law in the University of New South Wales. I might add that Ivan holds the rank of Captain in the Royal Australian Navy and is recognized internationally as an expert in matters pertaining to the law of the sea and the law of naval warfare.

Our plan is to have each of the principal presenters speak for twenty minutes and I will hold them to that. Following the break, our commentators will give us their observations, hopefully in fifteen minute increments, and after that we will open the floor for questions and comments.

Our commentators this morning again are old friends. Captain Ash Roach, our first commentator, is an attorney in the Office of the Legal Adviser, Department of State. Ash really needs no introduction. He is a valued friend and colleague to us all. Professor Bernie Oxman, our second commentator, is again well known to us all. Bernie became very well known to the international law community through his work with the Third United Nations Conference on the Laws of the Sea where he was truly a pillar for U.S. interests in that development. Our final commentator will be Captain Ralph Thomas of the Naval War College, who will not be presenting his own views but those of Professor Verwey. Professor Verwey provided some excellent comments in a very thoughtful paper which we want to share with you despite his inability to be with us this week.

Now the issue that we will review and dissect this morning is one which I think you will all agree we have examined in each of the other sessions, either directly or indirectly. When we assess the need for new international accords, I think we have to first assess the adequacy of the total fabric of our international obligations and available sanctions. We must also look at all the conventions not related directly to the environment which have the collateral effect of protecting the environment. These, of course, would include the Geneva Conventions.

In reviewing the present international legal structure and its adequacy, we must first look to see if *lacunae* exists in this body of law, or in its application, and whether or not those *lacunae* can be corrected. Advocates of ratification of Additional Protocol I certainly make such a claim. In our presentations this morning, we will see three somewhat different perspectives. From their prior articles and their early drafts for this meeting, I would surmise that Dr. Gasser will provide strong arguments for the ratification, by all nations, of Additional Protocol I, thus giving all nations the benefit of its Articles 35 and 55. These Articles, as you know, specifically address requirements imposed upon belligerents with respect to the environment during armed conflict. Dr. Fleck, I believe, will make a very strong case that there is a great need for providing enhanced means to enforce existing law. This requires, he would suggest, a more dynamic interpretation by States of existing rules and a constant readiness of States to enhance international consensus on common values. Dr. McNeill, our third panelist, will explain the vitality of the existing legal regime but will also make the careful argument that we must do a far better job of convincing all nations that it is in their interest, including their military interest, to comply with that body of law and to incorporate it into both their planning and their military manuals.

As Jack mentioned, until nine weeks ago I served as Legal Counsel to the Chairman of the Joint Chiefs of Staff. I would like to assure you that General Shalikashvili, and General Powell before him, took a very firm stand on the existing law with regard to the environment. In their view, and as they articulated in documents which were presented ultimately to the U.N. General Assembly, all States must be convinced to recognize the importance and relevance of existing rules. The second point that they would make is that existing international law does carefully circumscribe and proscribe environmental damage not justified by military necessity during armed conflict. The law does provide for sanctions, for State accountability and for individual criminal responsibility for commanders who violate these principles. Third, the Joint Chiefs would argue that there is no need at present to try to expand the scope or content of the law of armed conflict which prohibits environmental damage. They believed the existing rules are sufficient. Finally, they believe that what is needed is for the international community to better ensure effective compliance. I think that has been, in large measure, the consensus of the comments we have heard thus far in this conference. In that regard, the Joint Chiefs of Staff would argue that effective deterrence of environmental damage demands that the international community enforce sanctions and hold States and individuals accountable for violations of the law of armed conflict resulting in environmental damage. Unless it is enforced, they believe, international law is of little value. That is not to say they take a Pollyanna approach to an understanding of political reality. They recognize that when

regional States are unwilling to enforce international law against neighboring States, as we saw in the Gulf conflict, there is little chance of success.

In the view of the Joint Chiefs, other States affected by such violations are entitled to insist on the enforcement of broken promises; enforcement that may include cessation of the unlawful conduct, restitution and reparations. Their position is that whether the United States individually, or whether NATO, the U.N., the ICRC or any other appropriate body tackles these problems, the key is that we must first appreciate the limits and available sanctions under current law. The Joint Chiefs believe that until we understand and have tested these limits, the adoption of new law may be futile.

I will now turn the floor over to Dr. Gasser.

Dr. Hans-Peter Gasser, Senior Legal Advisor, International Committee of the Red Cross: Thank you Jim. Good morning. Let me first express my gratitude for having been invited to join this august audience, made up of academics and all sorts of representatives of the military profession. It seems to us from the ICRC, and to me personally, particularly helpful to have direct contact with those who actually work with international humanitarian law, who work on compliance with its rules and who work to alleviate suffering and to diminish unnecessary destruction in warfare.

I realize, of course, that almost everything that I have to say in my paper has already been said here in the last few days. So I will not dwell further on doctrinal issues, but move on instead to a very practical measure; a practical way to enhance and to enforce compliance with the rules protecting the environment in international humanitarian law. Contrary to Colonel Terry's expectations, I will not use this opportunity to make a case for ratification of the Additional Protocols because, quite simply, I take it for granted. When Jim spoke of the Joint Chiefs' conviction that existing law is sufficient to deal with the issue, for me the Additional Protocols are, of course, part of the existing law. Let me begin to set the stage and to express some of my convictions on these topics.

I think that in recent years there has been a major change of opinion on the impact of war on the natural environment and on the conclusions to be drawn from that reality for the conduct of military operations. To my knowledge, damage to the environment was not much of an issue prior to or after the destruction of Hiroshima or Nagasaki. Environmental damage started to be an issue in the debates on the involvement of U.S. forces in Vietnam and became a major concern during the Gulf War. The most recent chapters may well have been written by the withdrawal of the Red Army from its bases in central and eastern Europe. The latter was a peaceful and positive event, but for the indescribable garbage and other environmental destruction apparently left behind. Today, the potential

destructive impact of military action on the natural environment can no longer be denied, either in peacetime or in war.

A great leap forward, in my view, has also been made in the thinking of those responsible for legal advice on the law of war within the armed forces. Let me just recall some statements made in American publications. In a first and sometimes biased critique of the new rules on protection of the natural environment, which were introduced in 1977 by Additional Protocol I, Guy Roberts chose to oppose the new provisions on the protection of the natural environment just by saying without hesitation, or seeing any problems in making such a comment, that oil tankers and ships carrying hazardous chemical cargoes were "important and legitimate military targets." I do not intend to discuss whether such a cargo can be a military target, but it seems to me that the environmental impact of such a decision must be considered in target selection. Only a few years later, however, in its Final Report on the Conduct of the Persian Gulf War, the U.S. Department of Defense spoke about "environmental terrorism," when commenting on the destruction of the Kuwaiti oil installations by Iraq. In 1995, the Operational Law Handbook of the U.S. Army recognized that: "protecting the environment has become steadily more important during the past several decades and that failure to comply with environmental law can jeopardize current and future operations, generate international and domestic criticism." The idea that due regard has to be given at all times to environmental considerations in the planning and execution of military operations seems to have made its way. We have heard Colonel Burger speaking about a learning process going on as to how to integrate environmental concerns into military planning and operations. I have no doubt that similar developments are under way elsewhere in other armed forces; there is, for example, the new Law of War Manual issued by the German Ministry of Defence. So much for the factual side.

It is not necessary for me once again to review the law. However, I will add one small bit of information with regard to Additional Protocol I, and its two basic rules on the environment—Articles 35 and 55. Protocol I has now been ratified by 138 States. Thus 138 States are currently bound by that treaty. In a few weeks, the United Kingdom may well be the 139th. I will just say that the law of Additional Protocol I, while being treaty law, now commands a degree of legitimacy which should lead to general observance of its standards.

What remains to be done? In my view, which is also the view of the ICRC, and speaking in terms of time, energy and resources, the cost of drafting, negotiating and adopting a new international treaty, even on a much less difficult and controversial issue, is today very high indeed. Moreover, failure of a codification attempt may be more harmful to the cause than leaving the law as it is. And then, of course, there is always the risk that a new treaty may not be ratified by a large

number of States. That leads the ICRC not to advocate any major codification exercise in this field.

We all know that the idea of a Fifth Geneva Convention has been launched. I would first say that we think this proposal was a useful exercise to identify problems, identify issues and also arouse greater interest in the question. I might add that there is another draft convention that has not yet been mentioned. The Commission on Environmental Law of the World Conservation Union, in cooperation with the International Council of Environmental Law, has produced a draft international covenant on environment and development which includes an article on military and other hostile activities. This is a very recent initiative and I am not aware of any reaction to it.

In my view, since there is no sufficient reason to advocate the drafting of a new and comprehensive treaty, we can put all of our energy into compliance, into furthering compliance with existing international rules on the protection of the natural environment.

As has been mentioned before, the ICRC had convened meetings of experts in 1991, 1992 and 1993 to discuss possible action to strengthen the protection of the environment. Those meetings came to the conclusion that a comprehensive codification was not the way to go. But one of the conclusions was that implementation of existing international rules should be improved by drawing up guidelines to be incorporated at the national level in military manuals and other instructions for members of the armed forces.

We are pleading the necessity and urgency of providing all armed forces with a manual on the law of war or international humanitarian law. Not all armed forces in the world today have one, far from it. We believe it is essential to have such a manual and to address environmental concerns in it. To this end, those meetings of experts provided the input for such a manual. On the basis of an initial draft prepared by several of those experts (and some of the main ones are sitting in this room) the ICRC compiled a text which was submitted to the United Nations for inclusion, at its request, in a program we set up as part of the United Nations Decade of International Law. During its 1994 session, the General Assembly invited all member States to disseminate these guidelines widely and to incorporate them into their military manuals and instructions. That text has been sent to all U.N. member States. It has also been published in the latest issue of the American Journal of International Law† and offprints of that article are available on the table behind you. The text has a short introduction drawn up by me and includes an appendix with the guidelines.

These guidelines have to be taken for what they are intended to be—a tool, an instrument for making international legal rules better known. The text is not the

† 89 A.J.I.L. 641-44 (1995). *See also infra* Appendix A.

blueprint for a new treaty. It is not a proposal to enact something in any formal way. It is really just a model set of guidelines. These model guidelines can be adopted at the national level as part of a comprehensive manual, but they can also be used separately.

The basic principles of international humanitarian law, including the principle of distinction, the principle of proportionality and the prohibition of causing excessive suffering or damage, are included in the rules. I think it is important that we place emphasis on these rules and on the fact that they have to be respected in all types of armed conflict, all types of military operations. In particular, the guidelines do not differentiate between the regime for international armed conflict and that for non-international armed conflict.

To conclude, in our view the legal infrastructure to protect the natural environment in armed conflict is in place. It is not ideal, but it is a workable basis. The main task is to ensure that these rules are implemented and respected and we think the guidelines submitted to the United Nations and then provided to States are a step in the right direction. Thank you.

Colonel Terry: Thank you Hans-Peter. Dr. Fleck, you now have the floor.

Dr. Dieter Fleck, Federal Ministry of Defense Germany: May I first of all join the long and deserved chorus of those praising Professor Grunawalt for having convened this meeting which I consider to be most timely. I am grateful to have been invited and, indeed, it is a challenge to participate in this final panel to develop some ideas on how to proceed if we are really going to take seriously the protection of the environment in security affairs.

I would like to offer some remarks on three items which I consider important: military manuals; the importance of peacetime law in armed conflict; and the problems of non-international conflict from the legal perspective. Furthermore, I would like to explain why I consider new conventional law in this area to be unfortunate, at least at this stage. Lastly, I will try to develop a distinct proposal on how to proceed if we really want something to be done.

The revised guidelines for military manuals, just mentioned by Hans-Peter Gasser, reflect existing rules of customary law and describe acceptable policy. In my opinion, it was fully appropriate that the 49th Session of the United Nations General Assembly invited all States to disseminate these guidelines widely and to give due consideration to the possibility of incorporating them into their military manuals and other instructions addressed to their military personnel.

Hans-Peter already mentioned the Operational Law Handbook of the U.S. Army and its very interesting statement regarding protection of the environment. The German manual (I must confess this, being one of the co-authors) did not address the subject fully. I am elaborating on this in my paper. I think there are

areas to be further developed. This is also true for the San Remo Manual that was praised here so often, which was especially nice for me to hear having participated in its development. In the preparation of the San Remo Manual, the conclusion was reached that there does exist a duty upon States during peacetime not to harm the marine environment; but the application of this obligation in armed conflict, beyond the threshold indicated in the ENMOD Convention, or in Articles 35(3) and 55 of Additional Protocol I, remain ambiguous or uncertain. The San Remo Manual is conservative on this issue and, in my opinion, rightly so, given that it is the first step of restating the law of armed conflict at sea after a very long time. But there are still things to be done. Hence, I believe that the legal sources referred to and the policy statements made in the revised guidelines should be incorporated more fully into military manuals and other instructions in order to stress the importance of environmental protection in all military operations.

In this respect, the role of peacetime rules and the impact of international standards in non-international conflict situations are key issues which require convincing answers. Subject to the application of the laws of war, peacetime obligations in principle also apply in war, and they remain applicable in the relations between belligerents and third parties, at least to the extent that they are not inconsistent with the applicable law of armed conflict.

It remains an open question if and how this could apply, for instance, to certain rights of coastal States as specified in Articles 25, 192 and 194 of the Law of the Sea Convention or in the Vienna Convention for the Protection of the Ozone Layer of 1985, including the Montreal Protocol of 1987 on Substances that Deplete the Ozone Layer. Work should be done to elaborate on these very technical and detailed issues which are of practical relevance to operators.

The applicability of the laws of war in non-international conflicts requires a new assessment where long-standing principles of Common Article 3 to the Geneva Conventions and of Additional Protocol II prove to be hardly valid and new answers may be given by *opinio juris* and State practice alike.

Controversies over details of Additional Protocol I are of little relevance in this respect. Given the fact that most armed conflicts today are of an internal rather than international nature, Additional Protocol I so far has hardly been applied.

Paragraph six of the revised guidelines encourages parties to a non-international armed conflict to apply the same rules that provide protection to the environment as those which prevail in international armed conflict. Accordingly, States are urged to incorporate such rules into their military manuals and instructions on the laws of war in a way that does not discriminate on the basis of how the conflict is characterized.

This recommendation is in total conformity with the German manual as well as with the U.S. DOD Directive 5100.77 (Law of War Program). It clearly deviates from existing conventional law, but I think we all share the opinion that in no case

could civilized armed forces and their democratic political leadership accept a double book mentality for military operations in international conflicts on the one hand and non-international armed conflicts on the other.

These considerations of the impact of peacetime law on military operations and on applicable standards for non-international conflicts may strongly influence environmental considerations, even if there is now an emerging consensus that new conventional law is not required but that there is a need to provide enhanced means to enforce existing rules.

New international instruments indeed are not necessary, given the very useful rules summarized in the U.N. guidelines. Also, since these guidelines largely rely on existing international norms, new instruments would even be undesirable; they would only increase the existing gap between international legal obligations in force and the readiness for their observance. In this respect, I think we heard a very important statement by State Department Legal Advisor Conrad Harper in the beginning of this conference when he suggested that lawmakers, whether judges or legislators, are understandably more inclined to embrace discussions of rights than to confront sticky, practical, and sometimes seemingly intractable questions imbedded in the issues of compliance and remedies. Let us deal with these questions; that is more important than dreaming of new conventions which nobody would care for.

Work on such new instruments could severely disturb international cooperation on the issue which is so urgently needed. Hence, the important objective we are facing in this area is not creating new law but implementing existing rules. Now the implementation of existing law requires enhanced efforts for its dissemination, a dynamic interpretation of its principles and provisions, and constant readiness of States to strengthen international consensus on common values.

An important example for dynamic interpretation was the decision taken by President Ford in his Executive Order in April, 1975, that as a matter of national policy, the United States would renounce first use, in war, of herbicides and riot control agents except in defensive military modes to save lives. Another very good example was given by the then-Chairman of the Joint Chiefs of Staff, General Colin Powell, who in his report to Congress on Coalition Operations in the Gulf in 1991, explained that the provisions of Additional Protocol I, for the main part, applied as if they constituted customary law. While Additional Protocol I is not binding on the U.S., you can very well imagine that this was very much appreciated by European lawyers and policymakers and, indeed, I can hardly foresee any military operation of the United States differing very much from this position in the future.

Significant efforts for better implementation of legal rules must include improvements in verification. In this respect, existing means of international law, so far, have not been used sufficiently. This is true for the Additional Protocol I,

Article 90 fact-finding commission. It is also true with respect to the United Nations. Indeed, U.N. experts and also U.N. peacekeepers should assist more actively in environmental fact-finding as one of the prerequisites for stable post-conflict peace-building. It would be worthwhile to combine forces from various sources in order to avoid propaganda effects and achieve practical results. I believe that the methodology of fact-finding under Article 90 of Additional Protocol I would be more helpful than publicizing every result which is the normal practice under U.N. procedures.

Any such efforts could never be achieved except through international cooperation. The ICRC, States, and international organizations active in this field deserve our gratitude and respect. It is essential to lend support to these activities also on behalf of governments and armed forces. Without such support it will remain difficult to ensure compliance with existing law, to improve implementation and to respond in a convincing manner to expectations of the public at large.

Until now, there are no exact criteria for a coherent assessment of environmental damage in military operations. A variety of relevant parameters should be considered in this respect, in order to balance the measures necessary for an effective defense against the consequences of such on humankind and the environment. NATO was one of the first international organizations to begin to deal systematically with environmental problems when it established the Committee on the Challenges of Modern Society, CCMS, as early as 1969. The Alliance program, 'Science for Stability,' has so far supported considerable efforts in technological research on environmental protection in peacetime. The time has come to supplement these activities by developing a cooperative approach to protection of the environment in times of armed conflict. We heard a reluctant, but not negative, response yesterday during the lunch time discussion of this very question. But I think it essential that we pursue this idea if we are to really develop meaningful approaches to protecting the environment. We cannot exclude military operations in conflict situations.

Indeed, a proposal for a CCMS Pilot Study on the Protection of the Environment in Military Operations was forwarded by Canadian, German and Norwegian experts in January 1994. Though various delegations have offered their support and expressed their interest in actively participating in this project, certain objections were raised by two delegations concerning the negative military implications of such a study. Following a German proposal, discussion in the CCMS in 1994 was postponed to allow for a reassessment. I appreciate the discussions we have had this week which I believe support such reassessment in a very positive manner. Discussion in the CCMS should certainly be taken up again in due time.

The CCMS should, indeed, provide its resources to collect further expertise, to influence interpretation and to support appropriate activities to implement operational law effectively. It provides a unique opportunity for reaching balanced results which are politically and militarily acceptable. In the absence of such activities, this topic would certainly be taken up by other fora in which the same degree of expertise and political military experience would hardly be available.

In the recent United Nations Environmental Program seminar in June 1995 the suggestion was made by Eastern Europeans, including representatives from Croatia, Poland and Hungary, that NATO should take a leading role in this area. We should not be daunted by the difficulty of such a task.

The study proposed in the CCMS should focus on problems of application and implementation of the U.N. guidelines which Hans-Peter Gasser mentioned. Its main objectives could be the preparation of a code of conduct for the protection of the environment in military operations and its dissemination by appropriate means, but I still believe we are far away from generalized rules. We have to work in the mode of case studies and we should be reluctant to compare situations which are not really comparable. This work, of course, could support the work on military manuals and instructions and help to strengthen political and military cooperation. It would be consistent with the Alliance's broad approach to security affairs. The question is open and I put this forward for discussion. Why shouldn't we take it up? Thank you.

Colonel Terry: Thank you Dieter. Dr. McNeill, the floor is now yours.

Dr. John H. McNeill, U.S. Department of Defense: Thank you very much, Jim. I am grateful to the Naval War College for allowing me to take part. I thought I should mention at the outset what a disappointment it is that Professor Wil Verwey of the University of Groningen could not be with us this week. He and I were to debate whether new international agreements were needed to deal with this problem, two years ago, in The Hague and he was unable to attend. Right now I know he has some very serious family difficulties that are keeping him from being here with us. I just hope at some future occasion he can join this group as we continue our conversations.

With respect to my own remarks, in view of the fact that we have a mere three and a half hours to discuss the topic, I thought I should just summarize my paper. Of course, we are aware that my friend George Walker's motto is to keep it short. So, I will just give you somewhat of a summary but I will beg your indulgence to read through a few of the more ritualistic parts of the paper that are available in the event you would like to review my remarks in more detail.

I think we can take, as a given, that at the current stage of international law, the world community has every right to expect that concerns for the well-being of the

environment will be taken into account by those planning and executing military operations. War itself is no longer looked upon as the moral or functional equivalent of a natural disaster, almost an act of God, as was the view in the 19th Century when States were free to initiate hostilities against each other. In the modern era, and as we heard yesterday, States and individuals can be held responsible for international damage to the environment in certain cases. During the 20th Century, great natural devastation accompanied the tragic human losses suffered during the 1914-1918 and 1939-1945 wars. My father, as a soldier in the American Army, fought in the battle of the Huertgen Forest in 1944 - an area of the German Ardennes that even today remains so despoiled by that battle that trees cannot be taken for lumber due to the amount of lead imbedded in the timber.

Today, we are all too aware of the human tragedy unfolding in Bosnia-Herzegovina, accompanied as it is by significant damage to the natural environment. But perhaps the most dramatic wartime environmental devastation in recent years occurred in Kuwait and the Persian Gulf; it has been the centerpiece and focus of our discussions here this week. There occurred deliberate acts of environmental terrorism. The acts perpetrated by the Government of Iraq and its military high command included the sabotaging and torching of 732 oil wells in Kuwait. Yet we have not talked as much about something that was perhaps equally destructive: the damage caused by the deliberate spillage of oil begun in January 1991, which ultimately involved an estimated 6 million barrels of oil. The major source of the oil spill was the deliberate opening of the control valves by Iraq at Kuwait's offshore Sea Island terminal adjacent to Mina Al-Ahmadi. This action was mitigated by the bombing of associated shore-side pipelines and a related manifold complex by the United States Air Force, an incident which offers us an example of direct military action taken for reasons which include protection of the environment. The Gulf War and other recent events have clearly helped to focus the attention of the world community on the subject of our inquiry this week.

Although we have talked about and around many of the legal obligations of States with regard to protection of the environment in times of armed conflict, I think it might be just as well to go through some of these this morning. I take as my text, and I think its particularly interesting, the landmark U.N. General Assembly Resolution 47/37 entitled, "Protection of the Environment in Times of Armed Conflict," which was adopted in 1993. This document was initially prepared by the Government of Jordan and the United States to assist members of the U.N. General Assembly's Sixth Committee in their deliberations on the subject. It identified nine specific provisions of existing international law which provide protection for the environment during times of armed conflict, and an additional five which apply to States parties to international agreements containing provisions on the subject. Of course, as we heard from Dr. Gasser,

General Assembly Resolution 49/50 of last December supplements 47/37 with the guidelines he referred to.

Resolution 47/37 contained a number of interesting aspects. It was adopted by consensus. Since it was more or less contemporaneous with the destruction that occurred during the Gulf War and with the many discussions that occurred in conferences, it has particular relevance to our discussions this week. In fact, the Resolution actually spoke of the destruction of the hundreds of oil well heads and the release and waste of crude oil into the sea, and noted that existing provisions of international law prohibit such acts. The Resolution went on to declare that, "destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law."

During the Gulf War, there were a number of commentators who expressed concern that the international legal structure was not sufficiently developed to deal with problems such as these. While some even strained to demonstrate that Iraq would have violated the 1977 ENMOD Convention had it been a party, I think it is clear, and as we have heard this week, most have concluded that this would not have been the case. I would just like to say one word about the ENMOD Convention, and to recount that its prohibitions are not directed at environmental warfare as such, but rather what has been termed "geophysical warfare," which implies deliberate manipulation of the natural processes. Moreover, the ENMOD Convention prohibits a State party from the military or any other hostile use of environmental modification techniques that cause "widespread, long-lasting or severe effects" as the means of destruction, damage or injury to any other party. While it has been correctly noted that the insertion of the three quoted terms of limitation was very vigorously criticized, their use in this context has served to focus the prohibitions accurately on exactly that behavior which gave rise to special concerns by sponsoring and negotiating governments at the time. The ENMOD Convention was never envisaged as a general prohibition against environmental damage during war. To find, however, as have numerous commentators, that even if Iraq had been a party to the ENMOD Convention during the time of its invasion and occupation of Kuwait, the prohibition of the convention was in all probability not violated, is not to agree with those who imply that this very useful convention is somehow defective.

That was really not its goal. I think, perhaps, it is too early to say it has failed in achieving its goal. There are, after all, no examples of violation of ENMOD. Perhaps this too has been incorporated, at least to some degree, in planning, training and other modes of dissemination of the rules. It is simply one of the many sets of prohibitions directed toward the protection of the environment during wartime and it was included in the list of potentially applicable international agreements provided in the memorandum annexed to Resolution 47/37.

Other observers took an opposite approach, arguing that there were no adequate legal prohibitions against what Iraq had done and that therefore a new international agreement was required to deter actions of this kind in the future. In fact, through Resolution 47/37, the world community basically recognized that neither of these views is correct; that Resolution confirms the conclusion that the law of war itself contains a sufficient body of principles to provide a basis for deterrence and, should this fail, punishment; about which I will say a few words later.

At this point, I would like to review the applicable rules of the law of war with respect to protection of the environment, in order to make clear that a substantive and accepted legal basis currently exists. I will not tread on the patience of this very erudite audience by giving all details. But I would just like to go down the list.

The first of these would be the fundamental rule set out in Article 22 of the Regulations annexed to the Fourth Hague Convention of 1907 Respecting the Laws and Customs of War on Land, that the right of belligerents to adopt means of injuring the enemy is not unlimited.

Secondly, there are the rules governing the means of injuring the enemy reflected in Article 23 of the Hague Regulations, aforementioned, that prohibit the employment of poison (Article 23(a)) and the destruction of the enemy's property unless such destruction be imperatively demanded by the necessities of war (Article 23(g)); and also the rules in Article 28 of the Hague Regulations that prohibit pillage.

It is, of course, a grave breach of international humanitarian law, and it is a war crime, as set out in Article 147 of the Fourth Geneva Convention, to extensively destroy and appropriate property when not justified by military necessity and carried out unlawfully and wantonly. There is the customary rule, reflected in Articles 49 and 52 of Additional Protocol I, that military operations may only be directed against military objectives and that acts of violence, whether in offense or defense, shall be strictly directed at military objectives. And it is a war crime as well to employ acts of violence not directed at specific military objectives, to employ a method or means of combat which cannot be directed at a specific military objective, or to employ a means or method of combat, the effects of which cannot be limited as required by the law of armed conflict.

There are further customary rules that prohibit attacks which reasonably may be expected, at the time, to cause incidental loss of civilian life, injury to civilians, damage to civilian objects or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated. They include the rule that military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances

ruling at the time, offers a definite military advantage. There are also Article 55 of the Hague Regulations and Article 53 of the Fourth Geneva Convention which relate to the duties of the occupying State, including the usufructuary responsibilities of the occupying power, and these of course were particularly applicable to the situation in Kuwait.

In addition to what I have just mentioned, there are five other legal principles which are applicable to protection of the environment during armed conflict pursuant to international agreements. Article 55 of Additional Protocol I requires States to take care in warfare to protect the natural environment against widespread, long-term and severe damage. Articles 35(3) and 55 of the same Protocol also prohibit States parties from using methods or means of warfare which are intended, or may be expected to cause, such damage to the natural environment and thereby to prejudice the health or survival of the population. Article 55(2) of the same Protocol prohibits States parties from attacking the natural environment by way of reprisals. Article 2(4) of Protocol III to the 1980 Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons, etc., prohibits States parties from making forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives. And finally, there is the ENMOD Convention which I have previously discussed.

The key question is whether these rules are sufficient to protect the environment in wartime. In order to reply, it may be instructive to examine how the above cited principles applied during the Gulf War to the environmental deprivation that was initiated by Iraq. With regard to the oil-related Iraqi actions already referred to, it is clear that, *inter alia*, the elements of customary international law, now codified in Articles 23 and 55 of the Hague Regulations cited above, as well as the provisions of Article 53 of the Fourth Geneva Convention, were violated on literally hundreds of occasions—even if one were to take into account only the 732 oil wells that were sabotaged and the large number of these that were set afire. A grave breach of Article 147 of the Fourth Convention occurred, since the Iraqi actions were committed against properties subject to the protection of that Convention and extensive destruction of such property took place unlawfully, wantonly and without military necessity. Article 22 of the Hague Regulations, limiting the means of injuring the enemy, was also clearly violated in this regard. Moreover, the customary law prohibitions reflected in Articles 49 and 52 of Additional Protocol I, which require that military operations be directed only at military objects and that acts of violence be strictly directed at military objects, also appear to have been violated by the Iraqi attacks. While it may well be argued, and correctly I would say, that not all attacks against oil wells are invalid *per se*, it does seem clear that in the case of the Iraqi actions, no military objective

was served by its evident plan to systematically destroy Kuwait's entire oil production capability. It should be recalled that every Kuwaiti well head was packed with 15-20 kg of Russian-made plastic explosive and electrically detonated in furtherance of the premeditated and vindictive Iraqi policy. All 26 Kuwait petroleum-gathering stations were also destroyed, as well as the technical specifications for every oil well in Kuwait. There was clearly no justification for these Iraqi actions on this scale under the principle of military necessity, and even if some transitory military advantages were to be derived from the smoke and from the oil slicks, the magnitude of the resultant destruction was dramatically out of proportion to those goals.

Some observers have gone beyond these illustrations of criminal activity. For example, it has been suggested that Article 35(3) of Additional Protocol I, which prohibits the employment of methods or means of warfare which are intended or may be expected to cause widespread, long-term and severe damage to the natural environment, may be considered to have a normative content. If that were true, it would provide an additional basis for prosecution of Iraqi officials. However, this view has not met with wide acceptance, and indeed the memorandum appended to Resolution 47/37, as I mentioned earlier, makes it clear that this is a matter of conventional, rather than customary, law.

As this analysis suggests, the international community can draw upon a considerable body of existing law to prohibit wanton destruction of the environment during wartime. As we have seen, both customary and conventional international law contain important rules in this area. Is what we now have sufficient?

This question has already been examined at some length. Following the cease fire accord in the Gulf, which took effect on April 3, 1991, pursuant to U.N. Security Council Resolution 687, a number of international conferences were held to discuss whether the existing legal regime was in fact at a satisfactory stage of development. I am going to refer to three meetings here: the Conference on a Fifth Geneva Convention, held at London in June 1991, under the joint sponsorship of Greenpeace International, the Centre for Defence Studies and the London School of Economics and Political Science; the Ottawa meeting of the Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare, organized by the Government of Canada in July 1991; and the Consultations on the Law Concerning the Protection of the Environment in Times of Armed Conflict, convened by the International Union for Conservation and Nature and Natural Resources and the International Council of Environmental Law, and held at Munich in December 1991.

It is interesting that the Secretary General of the United Nations has summarized the main conclusions of these meetings and has reported to the General Assembly on them. The Secretary General's chief finding was that: "[a]t

those meetings, generally speaking, the idea of creating an entirely new body of international rules for the protection of the environment was ruled out. Most experts insisted on the importance of existing law. . . ."

He went on to indicate his view that the next step for the international community should be, instead, to ensure that even more States accede to or ratify existing treaties and that they observe their existing objectives and enact domestic implementing legislation. In other words, the existing legal regime is adequate in concept, and adequate in terms of its infrastructure. What is missing, of course, is execution. This is where prosecution, perhaps before a war crimes tribunal, could serve to provide sorely needed credibility to the regime of agreements currently in place. In essence, it is enforcement that is sorely needed now, not more international agreements.

I will move quickly to my final point. We heard from Chris Greenwood yesterday about the financial penalties that could be levied against States that transgress these rules and the regime of the U.N. Compensation Commission in particular. We have heard about dissemination from several speakers and I think we will hear more about that later this morning. We know about military manuals and the need for incorporation of rules into our training. There was mention earlier in the Symposium about the need to keep in mind the requirements of international law when weapons are developed, and I think I could just mention that the U.S. Department of Defense has a rather elaborate scheme for incorporating those rules into our weapons development program to make sure that compliance is kept in mind from the very beginning of the process.

I would like to just finish up by mentioning a few words about war crimes prosecution; I think Adam Roberts also mentioned this in his remarks. We have to confront the fact, for example, that after the Iran-Iraq War there was nothing done about the very well known, the very widely publicized, war crimes that were committed during that conflict. I think this failure began to tell those in the international community who have to live with these rules that perhaps they were not all that they were made out to be. Perhaps they were more hortatory than real. Perhaps they would not really get in the way of the policymaker when it came time to making a difficult decision. After the war in the Gulf there was a lot of discussion, but very little action, on this subject. But now we know that the Security Council has acted to establish special tribunals for the former-Yugoslavia and for Rwanda.

I would like to draw your attention to something that the United States Government has done. There was reference by Professor Roberts to our report to the United Nations of March, 1993. This is the unclassified report on the work of the U.S. Army in gathering evidence of war crimes committed by Iraq in Kuwait. It was submitted to the U.N. as an official document (U.N. document S/25441) after it became clear that there was little to no interest in doing anything else at that time. The U.S. Government did announce its intent to recommend to the

Security Council that a commission be established to investigate Iraqi war crimes during the Gulf War. We think that the new commission could be modeled on the one established by the U.N. for the former-Yugoslavia. The U.S. Army report on the Iraq conflict, and similar reports from other governments, could have been submitted if such a commission existed. The idea would be not only to publicize war crimes information in a broader sense to the media, but to make clear to other governments that the evidence exists for prosecution should the criminals responsible fall into their hands. And as we have seen recently, some of the Iraqi high-command are beginning to leave Iraq for one reason or another and I think this will continue; perhaps we should think again about establishing such a commission. I think the credibility of the law of war is on the line. We can do a lot with dissemination; we can do a lot through other means and modalities. But at the end of the day, what I think is going to count is dealing with these criminals who have recently acted with such impunity and who have in fact seemed to take rather perverse pleasure in what they have been able to do and what they have been able to get away with.

I will just leave you with that, as part of our common responsibilities in this area. Thank you.

Colonel Terry: Thank you Jack. We will now hear from Professor Shearer.

Professor Ivan Shearer, University of Sydney: Thank you Colonel Terry. I would like to thank the Naval War College and, in particular, Professor Grunawalt for inviting me, and also for bestowing on me the medal for the furthest traveled member to this conference. I am very pleased to be here. Someone, who had an advance look at my presentation might conclude that it is a typical academic lawyer's approach; it says "on the one hand, this, on the other hand, that." I hope that is not true because I feel very passionately about this subject. If in the end I arrive at a result, which I think many of you share, that the time is not right for further instruments, that does not mean we should altogether exclude that as a possibility for the future. However, I think that the time is ripe for restatements, or for conferences of this kind, which heighten awareness of the issues and which serve to exercise the minds of the essential players and, indeed, the wider community as to the importance of the environment in a military context.

I will begin by referring to the extremely useful publication of the results of the London Conference by our colleague, Dr. Glen Plant, and the four approaches to the question of whether new instruments are required that he identifies therein. The first of these four camps, Camp One, includes many influential policymakers from the military powers who consider existing customary law norms to be an adequate basis for the protection of the environment in times of armed conflict. They therefore consider that new binding international instruments are not

necessary. The provisions of Additional Protocol I are not regarded by them as having yet achieved, in all respects, the status of customary international law—in particular the provisions of Articles 35(3) and 55, which, in their view, set too precise a threshold on the applicability of restraints on actions likely to effect the environment.

Camp Two differs from Camp One regarding the provisions of Additional Protocol I as having achieved customary international law status. Moreover, people in this group regard Articles 35(3) and 55 as having crystallized customary international law in setting restrictions on the ability of commanders to evaluate, subjectively, the effects of their actions on the environment. They generally share, however, the views of Camp One that there is a danger in moving towards the adoption of any new instrument; that the dynamic force of customary law and of existing international instruments may be overshadowed and thereby weakened. It may be, and I think it was confirmed by what Dr. Gasser said this morning, that the ICRC is inclined generally to fall into that pattern of thinking at present.

The Third Camp consists of those who consider existing customary and conventional law to be inadequate to protect the environment in times of armed conflict and who seek improvements and clarifications and extensions and so on. Even in this group, not all would favor a new convention (which has often been referred to as "Geneva V,") or new specific agreements or protocols. Some in Camp Three would favor, instead, a non-binding restatement of existing law that would go beyond a restatement of existing customary law to include some elements of progressive development of the law.

Finally, Camp Four, while sharing the views of Camp Three would go further and seek to abolish the distinction between times of armed conflict and times of peace. In their view, all State operations should be governed by principles and rules prohibiting destruction of the environment, whether deliberately or collaterally. At least all four camps seem to share one important concern—one that has come out very clearly throughout the three days of this Symposium—that ways must be found to increase the effective application and observance of the existing and future law.

So the essence of the debate, as I see it, is between those who favor an approach based upon existing customary and conventional law and those who favor progressive development of the law through new instruments. I will pass over the sections of my paper in which I discuss the present content of customary law respecting protection of the environment during armed conflict and other military operations and also the suggested need for clarification of the present law. I think these have been sufficiently ventilated in the past two days. I will instead go directly to a summary of what I see to be the advantages and the disadvantages of new accords.

Generally speaking, it is not difficult to see the advantages of conventional law expressed in multilateral conventions enjoying wide adherence by States. As a general observation, conventional law has the qualities of relative clarity of expression, authenticity and ease of invocation and application similar to the advantages of statute law over the unenacted common law in national legal orders.

In the international legal order, which lacks central organs endowed with true legislative, executive and judicial powers, multilateral conventions occupy a prime rank in the sources of international law. In the particular context of combining the law of armed conflict with international environmental law, it might be thought that the quasi-legislative processes of conventional lawmaking would be the most obvious solution to the problem of clarifying and/or progressively developing the law. Moreover, that process, which necessarily involves the participation of a large number of States in the negotiation and adoption of the text, in itself serves as an exercise in the raising and articulation of concerns. This process also serves as an occasion for the expositions of *opinio juris*, as well as opinions as to what the law ought to be, which form a part of the material from which the later stage of customary law may begin to flow in a parallel stream.

The educative and persuasive, or sometimes dissuasive, effects of multilateral conventions are often counted among their chief benefits to the international community. That there is an accepted international standard of conduct for which chapter and verse may be cited, can be of great political advantage to States, intergovernmental and nongovernmental organizations and individuals, as for example in the field of human rights. These, I believe, are the clear advantages of new accords.

It is difficult, as a general observation, to point to any inherent disadvantage of multilateral instruments; however, the common features and effects of such instruments may in certain circumstances work disadvantageously.

In the first place, conventional law tends to take over the field previously held by customary law in relation to the particular subject matter in question and to exclude its further exogenous development. To the extent that multilateral instruments codify preexisting customary law, they can tend to stunt the further development of customary law except upon a path parallel with that instrument. It is true that there may be exceptions, but these are rare. I have cited in my paper the *Fisheries Jurisdiction Case* in the International Court of Justice which did recognize that customary law had not been prevented from developing after the 1958 Geneva Conventions.

In the second place, conventional international law tends to freeze the law in a particular time frame. It may become out of date before it has long been in force or even entered into force. It is not as easy to update as national legislation. Time

and immense resources are required to assemble a diplomatic conference which is the only equivalent to a legislature in the international legal system. Political circumstances may sometimes militate against this course. I can draw a parallel with the 1982 Law of the Sea Convention in which, as you know, provisions on deep seabed mining and high seas fisheries were already inadequate, out of date or unsatisfactory before the Convention entered into force. You will recall that quite extraordinary measures were taken to foster political consensus in the United Nations whereby through the implementing protocol, the Law of the Sea Convention will enter into force with a revised version of Part XI dealing with deep seabed mining. Tracing that history provides quite a useful analogy to bear in mind when assessing the need for new accords. That illustration demonstrates that if you set things in concrete too early they may not work and it may not be as easy to achieve a change as some people imagine. The Law of the Sea Convention is perhaps a remarkable exception to that general rule.

My third observation about the disadvantages of new accords is that the creation of law through multilateral instruments tends to be a highly politicized process. Typical negotiation procedures, by way of consensus, sometimes produce texts of perplexing opaqueness, with the result that some provisions are reduced either to the platitudinous or to the dangerously self-judging. An often cited example of the latter is Additional Protocol I, Article 44(3), relating to the obligation of combatants to carry arms openly.

It is tempting to dwell on the point that the more the drafting of multilateral international instruments is left to the experts, the more workable and durable those instruments are likely to be. For example, little criticism is heard of the four Geneva Conventions of 1949. They were drawn in large part from earlier and tried instruments and from the immense preparatory work of the ICRC during and immediately after World War II. The diplomatic conference of 64 States which adopted those conventions in 1949 was of comparatively short duration. It sat from the 21st of April to the 12th of August in that year. By contrast, the diplomatic conference which adopted the Additional Protocols I and II consisted, at various times, of up to 124 States and met for a total of eight months spread over four years. Another example, of course, is the Law of the Sea Convention. The Geneva Conventions of 1958 were drafted essentially by the International Law Commission. But the 1982 Convention was drafted by a mammoth conference which took no less than twelve negotiating sessions spread over ten years to finalize the text of the United Nations Convention on the Law of the Sea in 1982. There was no preparatory work by the U.N. International Law Commission or any other expert body, for that matter. Such specialized bodies as there were came from within the Conference, formed according to the exigencies of "representativeness" and "balance" rather than of expert knowledge. Now all of these considerations would appear to militate against the desirability of subjecting the topic of the law

of armed conflict in the environment to the uncertainties of the international negotiating process.

But these considerations must nevertheless be carefully weighed against the advantages of codification and progressive development. Although I think the time is not yet right, the time may come when that could be a useful exercise. But that could be, in my view, only if the preparation of draft texts was made by an expert and relatively small body, with wide knowledge of international law in general, and not merely of the law of armed conflict or of international environmental law. Secondly, the goal in such drafts should be to codify and reaffirm existing principles of customary law rather than to proceed from new premises and attempt to create altogether new law.

So, at the moment, my conclusion is that the best way to proceed on this subject is with the preparatory work—and it may be that the work itself rather than the product is the important thing. A restatement of existing customary principles of the law of armed conflict, and of other military operations, in relation to the effects on the environment should be prepared by a group of experts convened under neutral auspices, possibly by the ICRC in combination with other expert bodies. It would not be designed as an instrument open to adhesion in treaty form and hence it would not require a diplomatic conference to consider its results. An obvious example is the San Remo Manual to which many references have been made throughout this meeting and I am also very much impressed with the new version of what used to be called NWP 9, now NWP 1-14M. I think you all have a copy of paragraph 8.1.3 entitled "Environmental Considerations." That, to me, is a very good summation and could well be the kernel around which such a restatement that I am suggesting could be achieved. But meetings like the London meeting, the Ottawa meeting and now this Symposium, will also have profound influence on the conduct of governments and that is really the most important thing.

Thank you Colonel Terry.

Colonel Terry: Thank you Ivan. Our first commentator will be Ash Roach.

Captain J. Ashley Roach, Office of the Legal Advisor, U.S. Department of State: The remarks I am going to make here, which have been amended after listening to the comments of the speakers this morning, are my own and have nothing to do with anything the United States as a Government may think about all of this.

As this Symposium draws to an end, let me join in the chorus of thanks and praise for the organizers.

I believe that we met the objectives set for us, although as you may hear, the objectives may not have been set as high as I might have wished. I say this from

the perspective of one who has had a role in the process by which the debate moved from a call for new law immediately following Desert Storm through the three very useful ICRC meetings and the debates at the United Nations General Assembly Sixth Committee, to the recommendations to States by the 1994 General Assembly, regarding the Guidelines for Military Manuals which Hans-Peter has so graciously described and has so usefully provided to you. It will therefore come as no surprise to you that I was pleased to read and then hear the views of so many experts, yesterday and this morning, who agreed with the results of that work. The next speaker will present a different view, but he may be the sole dissenter.

I note that during the debates in 1992, 1993 and 1994, no one responded to my challenge to identify particular gaps in the law which leave the environment lacking protection during military operations. As far as I can tell, none have been identified here. So, I for one do not see the future need for negotiating any new law.

On the other hand, I lament the fact that many papers fail to clarify three things. First, what are the factual differences between damage occurring to civilian property that also causes damage to the environment, and direct damage to the environment that is not the consequence of damage to civilian or military property. Secondly, I have not seen much focus on the legal regimes that would be relevant to these various factual situations. And thirdly, none have done the things which lawyers love to do, analyze them and see how they may differ or see how they may be similar. We have seen that there is much law governing the first of the factual subsets, what you might call indirect damage to the environment. And we all recognize that the environmental component is now well taken into account, at least by the military forces represented here in this room. Now the latter, which is the direct damage to the environment without being the consequence of damage to civilian or military property, is in fact a rare event in armed conflict. This is so because, as you all well know, seeking to damage the environment has very little military advantage. Consequently, I think we have more important things to do than to spend valuable time and effort on that subject. Hans-Peter has pointed us to the way ahead, I think.

Except for what Hans-Peter said this morning, no one has mentioned that the real work called for by the General Assembly and by the ICRC remains very much where we left it a year ago. As Hans-Peter just recalled for us, the General Assembly "invited all States to disseminate widely the revised guidelines for military manuals and instructions for the protection of the environment in armed conflict." I have heard no one indicate whether, or indeed how, they have taken up this invitation. Further, I have heard nothing which would tell us whether States have, in the words of the General Assembly Resolution, given "due consideration to the possibility of incorporating [the Guidelines] into their military manuals and other instructions addressed to their military personnel." It could be that this issue has

not been assessed here because the subject of our panel was limited to the need for new international accords, for which I gather there seems to be general agreement that there is, at least at present, no need. Or it could be, as my informal survey of the attendees yesterday revealed, that the Guidelines have not been widely disseminated, and thus they have not been incorporated into military manuals or other instructions addressed to military personnel. Considering the number of people who picked up the offprint of the guidelines at the break, I think today's evidence would suggest that is the true situation. But I would be remiss if I did not recall for you, as Hans-Peter did this morning, that the third edition of the Commander's Handbook on the Law of Naval Operations, which was recently approved for publication as a tri-service manual—Navy, Marine Corps and Coast Guard—contains the new guidance on environmental considerations in targeting in paragraph 8.1.3. I can only assume the annotated version of this new edition, which is under preparation here at the Naval War College, will include the Guidelines promulgated by the General Assembly.

Now that leads me to the central message that I wish to leave with you. In my view, prevention of harm to the environment, through education and training, is much more effective than deterrence through prosecution. The State Department Legal Advisor, Mr. Conrad Harper, opened these proceedings with a call for dissemination. You will recall that he said:

> Through the process of dissemination—by teaching what international law requires—the Naval War College is shaping the understanding of the men and women of the armed forces in whose hands the integrity of the environment rests during military operations. Precautionary, ex-ante efforts of this sort are crucial if we intend, as a practical matter, to protect the environment, and not simply debate liabilities, enforcement, and remedies after the fact.

Parenthetical, I think that is what we did yesterday.

Mr. Harper continued by saying that:

> By engaging in discussions that may well help shape the legal regime, this institution ensures that the perspective of the armed forces and the realities of armed conflict are not lost or neglected in the process.

And he concluded on this point by saying:

> Only through a commitment to dialogue, education, and consultation shall we succeed in building a reasoned measure of respect for the environment in the international community.

In that regard, this conference is an admirable and very useful way of moving that process forward.

I recall our luncheon speaker yesterday, Mr. George Vest, as he spoke eloquently about the great progress the U.S. Department of Defense has made in the past 25 years in enhancing U.S. national security through focused attention to peacetime environmental security, both here and abroad. But more remains to be done. We need not be so reluctant to take on the wartime aspects of environmental security. In that regard, you heard Dr. Fleck this morning give reference to his proposal for a pilot study in the NATO Committee on the Challenges of Modern Society, CCMS.

I invite your attention to the fact that the United States is hosting a roundtable on environmental national security as part of the preliminary meeting of NATO CCMS in mid-November in Washington. This day-long roundtable is designed to focus on the integration of environmental security considerations into the development of national security strategies. We hope to begin, by this process, a fruitful exchange among all Alliance countries on environmental security issues, both in the military and civilian framework. Perhaps that may be a place or a time in which Dr. Fleck's proposal could have its first formal examination.

To return to the subject of how we deal with the wartime aspects of environmental security, I am of the view that with few exceptions, you here today are key to accomplishing that mission because most of you in this room are, in fact, teachers. Most of you have a national and international obligation to enhance the understanding of the law of war by your students and by your clients. What then are the tools that are at your disposal for this particular task? As a starter, the papers presented here, and soon the printed proceedings of this Symposium, will give you access to the relevant material. But, as with the law of war generally, the uniformed lawyers and the retired lawyers engaged in this process, in a word, need a bureaucratic imperative. In 1977, the Secretary of Defense, gave that to us in DOD Directive 5100.77—which established the DOD Law of War Program. Without that Directive, I doubt many of us would have become involved in this process.

As Admiral Harlow's paper noted, a similar directive is in the works. The Joint Staff has recently proposed that a new Annex L, entitled "Environmental Considerations," be included in operational plans developed under the Joint Operational Planning and Execution System. While I am unaware of the details of this proposal, I think it is an excellent idea, as I do not think rules of engagement are an adequate substitute for such planning. Rather, it seems to me that rules of engagement are the consequences, the output if you will, of proper planning, and can never substitute for such planning. Thus, it seems to me this new Annex L is another manifestation of the realization by military commanders and the civilian leadership that the environment is, as was said yesterday by a number of our speakers, a commonly shared interest, as deserving of protection as are civilians and civilian objects. To paraphrase Professor Levie's remarks yesterday, "It is not

as important as what the law is that protects the environment *per se*, as it is that the law which does provide protection to civilians and civilian property also provides protection to the environment."

So, I submit to you that the challenge is to undertake the long-term obligation to do all in your power to disseminate the law of war, including the law providing protection to the environment during armed conflict. Our professional obligation is not to try to develop new law. Our obligation is to do all that we can to see to it that those in a position to cause harm to the environment in the conduct of military operations, whether in combat or in other operations, are sensitive to the environment in their decisionmaking and are in compliance with all the rules of international and national law governing the conduct of military operations. It seems to me the risks of not doing so are much too great. Thank you.

Colonel Terry: Thank you Ash. The next commentator on our program was to be Professor Wil Verwey who, as was stated before, could not be with us today. However, Captain Ralph Thomas, Jack's Deputy, will present Professor Verwey's paper for him. Ralph.

Captain A. Ralph Thomas, JAGC, U.S. Navy, Naval War College: Thank you Jim. It is unfortunate that Professor Verwey is unable to be with us. His excellent paper, which we have distributed to you, makes the case, which we generally have not heard over the last three days, for the proposition that amendment of existing rules, and the adoption of additional ones, are indispensable. With his absence we have lost an eloquent spokesman for that viewpoint. In making my remarks this morning, I shall attempt to remain as faithful as possible to his views. For purposes of simplicity, I shall take the liberty of speaking in the first person. And I hope those of you who see Professor Verwey will find him not too upset by my temporary appropriation of his name.

It is my purpose this morning to present and evaluate the major arguments for and against the views of those, *e.g.*, the U.S. Government and the ICRC, who hold that there is no need to provide for supplementary rules ensuring a more effective protection of the environment in times of armed conflict.

I will first address the relevant rules regulating international armed conflict, then those pertaining to non-international armed conflict, and finally provide my conclusions on the protective adequacy of existing laws and the possible need of additional rules.

The most prominent treaty provisions explicitly addressing environmental protection are found in two articles of Additional Protocol I. However, those provisions provide for partial and defective protection only. The first, Article 35, paragraph 3, contains the terms "widespread," "long-term" and "severe" that have been referred to so often during these three days. Although an agreement was

reached at the conference that produced that Protocol that "long-term" was to be defined as a period of at least ten years, the meaning of the other two terms, "widespread" and "severe," were not clarified at all. Additionally, the three terms established a cumulative triple standard. Thus, even the most "widespread" and "long-term" damage, which for some reason might not be considered also "severe," would not be forbidden. Although some commentators indicated that that provision is not meant to lower, but to supplement the traditional standard of protection provided under the general rules of the law of warfare, this is not at all certain. By reference to the general principle that *lex specialis* prevails over *lex generalis*, the provision may, in practice, very well result in lowering traditional standards of protection. The cumulative triple standard may now render permissible what before would have been forbidden by reference to general legality requirements like that of proportionality and the prohibition of unnecessary suffering. Today, under Article 35, suffering may, from an environmental protection point of view, no longer be considered "excessive" or "unnecessary" by parties to Additional Protocol I, as long as it is not objectively clear that it is "severe," "widespread" and "long-term."

Additionally, Article 35 does not prohibit all activities which may be harmful to the environment. Only those actions which cause damage, presumably visible, recognizable damage, are forbidden. It prohibits methods or means of warfare which are intended or may be expected to cause damage. These two observations render the provision a rather meager one in view of the following: one, potential harm may occur which is not directly visible or objectively demonstrable; and two, many interactive natural processes are not fully understood, resulting in harmful effects which are not recognized or expected that may occur now or in the future. Science tells us that even apparently restricted, relatively short-term and seemingly insignificant forms of environmental impact may subsequently have turned out to have triggered serious or significant ecological disruption.

The second relevant provision of Additional Protocol I is Article 55, paragraph 1, which reads:

> Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

From the perspective of environmental protection efforts, this provision reflects a crucial disadvantage, namely that the "Geneva" law is essentially man-protection focused. That is, that it does not in principle prohibit methods or means of warfare which do not, at least, also inflict damage upon human beings directly.

The final relevant provision of Additional Protocol I is Article 55, paragraph 2, which reads as follows: "Attacks against the environment, by way of reprisals are prohibited." As useful as this provision may be in itself, it does not cover military reprisals not intentionally directed against the environment as the object of attack. In addition, by reference to the principles of treaty interpretation, the prohibitive range of this provision would also appear to be confined to damage meeting the conditions of the triple standards I discussed earlier.

In addition to the foregoing specific observations concerning the limitations of the protection provided to the environment by Additional Protocol I, I would also note the following: first, when Protocol I was negotiated, environmental consciousness in connection with armed conflict had just begun to develop in the aftermath of the Vietnam War. Terminology chosen was clearly meant to exculpate, not to condemn retroactively, environmental damage, no matter how serious, inflicted by Untied States armed forces in Vietnam. This fact significantly confines the prohibitive scope of Additional Protocol I; second, the man-protection or anthropocentric nature of "Geneva" law cannot do justice to the need for environment protection as a primary value in itself. This failure is aptly illustrated by the fact that Article 85 of Protocol I does not include the infliction of widespread, long-term and severe damage as a "grave breach."

Another potentially relevant treaty is the ENMOD Convention. Although the paper contains a more detailed analysis of its strengths and weaknesses, the ENMOD Convention is subject to the following limitations: first, it only protects parts, objects or assets of the environment *within* the territory of State parties to the Convention; second, as in the case of Additional Protocol I, the drafting history and terminology chosen suggest that the Convention was not meant to cover those means and methods of warfare causing environmental harm which appeared to be militarily useful during the Vietnam War; and third, the Convention's prohibitive phrases are vague, full of loopholes and leave too much room for evasive interpretation.

In addition, as other speakers have discussed, there are several general provisions in both the Hague and Geneva Conventions in which an indirect corollary to environmental protective effect might emanate. They range from general provisions prohibiting the unnecessary destruction of enemy property, to more specific rules like those preventing starvation, those prohibiting attacks on objects indispensable to the survival of the civilian population, and those condemning attacks against dikes, dams and nuclear power plants.

At first sight, such provisions might seem to lend themselves to unconventional interpretations encompassing an indirect protection of the environment. However, under analysis it soon appears that all suffer from one or several environmental protective limitations. Many are conditionally prohibitive, since they bow to necessities of war. Others are only conditionally prohibitive to the

extent they do not protect military objects or objects of military importance; concepts which are subject to the interpretation of the belligerents. While there are other limitations, the most important conditioning factor is whether it is justified at all to inject such provisions with an environmental protection-oriented meaning. Establishing a link between them and the modern objective of environmental protection is both legally and factually disputable. All of the Hague and Geneva Conventions provisions were drafted and entered into force in pre-ecological times. That is, at times when environmental concerns were virtually nonexistent. Consequently, any effort aimed at a retroactive insertion of an environmental connotation into such old fashioned general treaty provisions is bound to be a tricky interpretative exercise which cannot be performed without running the risk of provoking substantial criticism.

Another question is: can an environmental protection treaty concluded for peacetime relations, to which both belligerents and neutral States are parties, be suspended as between belligerents and not impair the full enjoyment of environmental protection benefits by neutral States party to that treaty?

Again, I refer to the paper for a more detailed discussion of this issue, but the view advocated by some governments and experts that treaties relating to environmental protection should not be allowed to be suspended during armed conflict, actually still belongs to the realm of *jus de lege ferenda* rather than to that of *lex lata*. Furthermore, the conspicuous fact that not one single environmental protection agreement concluded for times of peace embodies a provision ensuring its continued applicability in times of international armed conflict, only serves to increase the uncertainty about the potential applicability of "peacetime" environmental protection treaties in times of international armed conflict.

Finally, there is also a significant question of the adequacy of the law of neutrality and its relevance to the protection of the environment. The treaties outlining the law of neutrality do not embody any provision related *expressis verbis* to environmental protection. In this regard, one could merely refer to general provisions like the respective Articles 1 of Hague Conventions V and XIII, according to which "the territory of neutral Powers is inviolable," and belligerents are bound to abstain, in neutral territory, or neutral waters, from any act which would, if knowingly permitted by any Power, constitute a violation of neutrality.

But also in this case, it should be recalled that these treaties, concluded around the turn of the century, were drafted at a time when ecological awareness was nonexistent. Consequently, efforts aimed at a retroactive induction of an environmental connotation into their rules are disputable. In addition, one should realize that even if such a dynamic interpretation were justifiable, it would merely concern the prohibition of belligerent acts which cause demonstrable damage inflicted inside the territory of neutral States.

In conclusion, it would certainly go too far to uphold the thesis that the law of peace and the law of neutrality, as far as they may be relevant to environmental protection in the relationship between belligerents and neutral States, would, by any objective standard, provide reliable protection of the environment in times of international armed conflict.

With respect to non-international armed conflict, nothing much innovative can be said. There is simply no provision in the Hague or Geneva law, nor elsewhere, specifically dealing with environment protection in the course of non-international armed conflict. Additional Protocol II does not even mention the subject. Indeed, a proposal to introduce provisions analogous to Article 35, paragraph 3, and Article 55 of Additional Protocol I, was explicitly rejected during the diplomatic conference.

In summary, it seems one cannot but come to the conclusion that protection of the environment in times of armed conflict is insufficiently assured by existing rules of international law. The relevant principles and rules of *jus in bello*, both in treaties and customary law, provide for partial and defective protection only, and to the extent that they do provide protection, substantial disagreement about their correct interpretation prevails. Belligerents enjoy substantial freedom to suspend the operation of relevant treaties belonging to the law of peace, to which they are parties, *inter se*. Substantial uncertainty also prevails as regards the possibility of ensuring that belligerents will, in practice, observe their obligation to prevent impairment of neutral States' rights emanating from such treaties as well as from customary law.

Actually, even the most optimistic and dynamic interpretation of relevant existing principles and rules could not justify the conclusion that one can be assured that existing law on the protection of the environment in times of international armed conflict is adequate. It cannot and will not suffice to continue to rely on calls for more consistent implementation of existing rules. Hence, the proposition that additional legislative activity, aimed at ensuring better protection of the environment in times of armed conflict, should not be called for, appears to the present commentator, on closer analysis, not to be tenable. Amendments of existing rules and adoption of additional ones are indispensable to achieve this purpose. Thank you.

Colonel Terry: Thank you Ralph, for standing in at the last moment for Professor Verwey. I will now turn the floor over to Professor Oxman, our final commentator. Bernie?

Professor Bernard H. Oxman, University of Miami: Thank you. My reaction to the excellent papers presented today is quite simple: I agree with virtually everything said. Since Ivan Shearer has helpfully summarized Glen Plant's

classifications of the various positions on the issue, let me say that the views I expressed to the United States Senate in 1991 place me mainly in the first camp. But I am willing to find practical ways to accommodate the objectives of those in the second camp. And I am ready to be persuaded by partisans of the third camp on specific points.

With respect to the papers presented today, I am not sure that all of the speakers on the panel would attach as much significance as I do to the following three points:

One, because armed conflict is always bad for the environment, any text attempting to deal with the full problem of environmental restraints on armed conflict in a simple and sweeping peremptory fashion is likely to do little but force a choice between the obvious and the fanciful;

Two, we must be cautious about perverse effects. The practical impact of a particular protective legal rule may be to increase the likelihood of undesirable damage, for example by encouraging the militarization of a site that would not otherwise have been a profitable object of attack;

Three, we should not confuse the *jus in bello* with the *jus ad bellum*.

Whatever the intent, I believe the fourth camp cannot easily satisfy these criteria. For example, let me quote from Sebia Hawkins' comments on behalf of the Greenpeace position before the American Society of International Law in 1991:

> Greenpeace believes that a Geneva Convention on the Protection of the Environment in Time of Armed Conflict would provide an ideal vehicle for persuading nations that modern warfare exacts too high of a price on the environment and that consequently, warfare is an untenable proposition for conflict resolution.

I think this is clearly the stuff of public education and the *jus ad bellum*, but not the *jus in bello*. To prohibit environmental destruction is to prohibit armed conflict, and thus not only to alter the *jus ad bellum* but to contradict the underlying thesis of the United Nations Charter regarding the means necessary to maintain and restore international peace and security. If Elisabeth Mann-Borgese is correct that "the worst of all polluters is war," then we should be seeking to strengthen the U.N. Charter system for deterring war, not redrafting the Kellogg-Briand Pact.

As to the second camp, let me distinguish between two issues regarding customary international law. The first issue concerns the customary law status of various treaty rules dealing with the law of armed conflict. The debate engages a few controversial provisions of the 1977 Protocols, including Article 35, paragraph 3 and Article 55, paragraph 1 of Additional Protocol I. I think a disservice is done to the credibility of international law when writers conclude that these provisions are declaratory of customary law without considering the impact, for example, of the statements of U.S. Government officials or the French statement in connection

with its ratification of the 1981 Conventional Weapons Convention. On the other hand, I can imagine more promising strategies for influencing the impact of Additional Protocol I than rejecting the Protocol and relying on a strict consensual view of customary law.

The second issue concerns the effect of environmental treaties that do not deal with the law of armed conflict as such. Here a double leap is sometimes made. First, the treaty rule is stated to be declaratory of a similar or even broader rule of customary law. Second, the principle of customary environmental law, so derived, is stated to be applicable without qualification under all circumstances, including armed conflict, and perhaps even to be non-derogable because it is an obligation *erga omnes* that protects a basic public interest of all humanity.

Articles 192 and 194 of the U.N. Convention on the Law of the Sea are sometimes invoked in this process. Article 192 declares, "States have the obligation to protect and preserve the marine environment." Article 194 requires States to "take all measures necessary to ensure that activities under their jurisdiction or control are conducted so as not to cause damage by pollution to other States and their environment."

The Article 192 that I helped to negotiate was the very first, and remains the only, statement of a comprehensive and unqualified environmental duty of States in a widely ratified treaty. It was negotiated as the principled foundation for a much more detailed body of rules that follow it, explicating its meaning and effect. Not one of those rules even mentions armed conflict. Quite to the contrary, Article 236 declares that the environmental provisions of the Convention do not apply to warships or military aircraft; warships and military aircraft are subject to a more flexible environmental duty that participants in this Symposium might recognize as a rough peacetime analog of the necessity and proportionality principles.

The Article 192 that I encounter in some of the literature on the subject of environmental protection during armed conflict—but not in the papers presented on this panel—is treated as evidence of an unqualified environmental duty under customary law applicable to all of the environment, not just the marine environment. This is something that neither the Stockholm Conference in 1972 nor the Rio Conference in 1992 achieved, even in a non-binding instrument. That Article 192 is extracted from its detailed context and set loose as an autonomous principle inviting a process of deductive reasoning informed only by the policy preferences of the author. The principle, as such, is declared to restrain all armed forces in the event of armed conflict, without regard to the necessity or proportionality principles, even though Article 192 itself does not have this effect even in time of peace.

A basic difficulty with such a move is aptly stated by Florentino Feliciano, "invocation of the general principles reflected in Articles 192 and 194 of the 1982

Convention needs to be complemented by references to applicable principles and norms of the law of war."

Of course general environmental law and environmental treaties are relevant to the law of armed conflict. They inform our understanding of the most general rules of the law of armed conflict, such as the Martens Clause. They also inform our understanding of many specific rules such as those designed to protect civilians, civilian objects, and property. But absent a clear indication of a contrary intent, they do not impair the rights and duties of States under Chapter VII of the U.N. Charter, or override the basic principles of the law of armed conflict itself, in particular the principles of necessity and proportionality.

There are absolute limitations on armed conflict that are not subject to the necessity and proportionality principles, although typically the formulation of such limitations is in fact influenced by those principles. Such absolute limitations are quite carefully negotiated and circumscribed. That is the explanation for the limited scope of both the ENMOD Convention and Article 35, paragraph 3 of Additional Protocol I, not any general lack of sensitivity to environmental values. I think it simply stretches credulity to maintain that environmental treaties not negotiated with a view to regulating armed conflict also impose absolute limitations not subject to the necessity and proportionality principles. For similar reasons, I do not think it is quite as easy as Professor Bothe, Judge Feliciano, and some others seem to believe, to incorporate Article 194 of the Law of the Sea Convention, or other environmental rules in unqualified form, into the rule declaring neutral territory inviolable.

My difficulties with some efforts to apply general environmental law and treaties directly to armed conflict are largely related to my concerns for the integrity and credibility of international law generally, and the law of armed conflict in particular. But there is also another reason for caution. General environmental law is still in its infancy and needs to grow. It is hard enough to negotiate useful general environmental treaties without inviting the military organizations of the world to worry about the effect of those proposed treaties on the law of armed conflict.

This does not mean the law of armed conflict should ignore useful ideas from other branches of international law. Environmental law, including the Law of the Sea Convention, makes clear that the environmental duties of a State include activities in its own territory. Dieter Fleck points out that the venerable and time-tested law of the sea principle of "reasonable regard" or "due regard" for the interests of others influenced the formulation in Section 44 of the 1994 San Remo Manual that, "Methods and means of warfare should be employed with 'due regard' for the natural environment." Jack McNeill clearly demonstrated the command and control implications of this principle when he stated that "the world community has every right to expect that concerns for the well-being of the

environment will be taken into account by those planning and executing military operations." Implicit in those remarks, and in Conrad Harper's on Monday, is another important, often respected, but rarely articulated implication of the "due regard" principle: "consult your lawyer early and often."

Just as many substantive maritime rules and treaties build upon the "due regard" principle in order to provide more specific guidance, so we can imagine a similar gradual development in the law of armed conflict rooted in the "due regard" principle. Thus, for example, the 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict prohibits both militarization and attack. Why not use a similar approach to give precise effect to Articles 58(c) and 60 of Additional Protocol I in order to protect uniquely valuable parts of the natural heritage from destructive attack? The I.U.C.N. has done some work along these lines.

The type of regulation I have in mind would require the State in control to avoid militarizing or otherwise making designated, environmentally sensitive sites inviting targets; in this context, it would prohibit attack completely.

The very process of thinking about what would be needed to implement this idea would have the felicitous effect of forcing the mind to focus on the practical issues that must inform the law of armed conflict. We would need criteria for choosing sites that emphasize unique environmental values and exclude substantial military implications. We would need strong international review procedures for designating sites and might need to consider according States the right to reject designation of a site in a timely fashion. If the object is to prohibit attack entirely, on the grounds that there are no activities or facilities on the site that may make it a tempting target, then we need to consider some process of verification.

I have no doubt that some military planners in the room are already worrying about the operational implications of this idea. That is their job. But we may be able to start developing a list of places whose extraordinary environmental sensitivity is such that, even if the place were militarized by an adversary, a decision regarding whether and how to attack would be difficult. In that case, demilitarization of a site may be a more balanced result than unilateral restraint. It ensures that both sides must bear the burden of protecting the area, and that environmentally sensitive areas cannot be lawfully employed as a sanctuary for military assets.

I do not suggest that all of this would be easy. We could start, for example, by considering only those areas on land that are already designated parks or refuges where most ordinary peacetime activity is already prohibited or very strictly limited to scientific research and recreation. We might deal differently with maritime areas because they pose special problems regarding international navigation and communication. In this regard, as in many others, I think the balance of the Antarctic Treaty is a useful source of general inspiration, although

what I have in mind are, of course, very much smaller, less remote, and more diverse areas.

Finally, I would like to add my voice to that of Ted Meron and others who are frustrated by the state of the law with respect to non-international armed conflict. Here again, I believe that attempts to incorporate general environmental law in unqualified form will not work, and that it is better to look to the environmental norms themselves, or to the law of treaties, for those qualifications. But it does not seem to me, with respect at least to the designation of unique environmental sites that may not be made inviting objects of attack—and that accordingly may not be attacked—that there may be some possibility for avoiding the distinction based on the type of armed conflict because use of the area would be severely restricted in times of peace as well.

In sum, I think a consensus can be built around Paul Szasz' aptly stated view that nature is no longer fair game in mankind's conflicts. We should seek practical ways to give effect to that principle, including those outlined by Hans-Peter Gasser. That, in itself, would be no mean achievement.

Thank you.

Colonel Terry: Thank you Bernie and again thank you to all of our panel participants.

We will now open our discussion to the entire Symposium. Admiral Doyle, your hand was up first.

Vice Admiral James H. Doyle, Jr., U.S. Navy, (Ret.): Thank you Colonel Terry. Its always a pleasure to see you again. I want to congratulate the Naval War College and Jack Grunawalt and his staff for a superb conference. I think that the discussions and the interchange both here and in the hall have been most fruitful. We are all interested in protecting and preserving the environment, and I believe our work here will go a long way toward pursuing that objective.

I am going to address my remarks from the perspective of a planner—an operational planner at the Joint Staff and National Security Council levels, and the commander of forces at sea, in particular carrier task forces.

There is, and I think we have seen, an enhanced sensitivity to the environment by the planners and the commanders and their lawyers in their military operations across the entire spectrum, from peacetime and training operations, to operations other than war, to armed conflict, both international and internal. We have heard this sensitivity expressed from the first day of this conference by the Assistant Deputy Chief of Naval Operations (Plans, Policy, and Operations). But the environment is not the only sensitivity that a planner and a commander must consider. There is the mission and its accomplishment in the least time, expending the fewest resources and hopefully without loss of life or at least minimum loss of

life. Commanders must also consider the effect on the diplomatic effort to bring the war or conflict to a close. Bosnia is a good example. Therefore, selection of targets is a balancing process requiring an assessment of all factors, including damage to the environment, before a decision is taken. That is what we heard from Colonel Jim Burger. Although he could not tell us precisely what the rules of engagement are, he did tell us about the process, which translated, involves a careful assessment of selected targets before a decision is made, probably at very high levels of command.

In my opinion, the balancing can best be done under a criteria of military necessity and proportionality. In the case of the environment—and I am repeating what Bernie Oxman said because I want to get it on the record again—with due regard to the protection and preservation of the natural environment and a prohibition against wanton destruction.

I firmly believe that applying this criteria will, in fact, provide far more protection to the environment than the vague and unknown criteria of "widespread, long-term and severe" damage in Article 35 of Additional Protocol I. This is not an assault on the Protocol; it is taking issue with Article 35 as a criterion. Which brings me to the Guidelines that Dr. Gasser described. I am not against guidelines, but I have concerns about the list of guidelines as presented. For me, they are not specifically and directly tied to the umbrella of due regard, military necessity and proportionality. I think they are better considered in formulating the rules of engagement which are tailored to the specific mission, objective and situation. If I were developing guidelines in an abstract setting, I would probably come up with yet a different set than that contained in these guidelines. And in another year, I would come up with a different set because I would probably know more about the impact on the environment, as expressed by Arthur Gaines, Ron DeMarco, Commander Quinn and Bill Arkin. And in a year after that, I would probably revise that list based on changes in targeting, technology and weaponry.

Finally, the Guidelines presented are singled out and elevated to a status which may be interpreted to be above other critical factors that the planner and commander must consider. I believe we must take careful and evolutionary steps in pursuing guidelines to protect the environment so that the integrity of the laws of armed conflict and their progressive development are preserved, and that the gains achieved in the environmental field are not undermined.

Thank you.

Colonel Terry: Thank you Admiral. Does any member of the panel desire to respond to the comments of Admiral Doyle?

Captain Roach: Let me just note for consideration of the assembled multitude and for the readers of the record of these proceedings in the future, that the first general principle set forth in the Guidelines does, in fact, reflect many of the concerns that Admiral Doyle was expressing. If you look at subparagraph 4 under Roman Numeral II of the Guidelines, you will see that it says that in addition to the specific rules, the general principles of international law applicable in armed conflict, such as the principles of distinction and proportionality, provide protection to the environment and then goes on to deal with other things. When we drafted these things, I, at least, had in mind the very concerns that you were expressing. In the negotiating process, as you know, we sometimes have to say things in different words. But clearly we were taking that into account.

Professor Adam Roberts, Oxford University: I have three questions in ascending order of difficulty. First, in response to Professor Shearer, I would just like to underline a concern about what he said in respect to experts concluding agreements. I am asking you a question about whether experts can be relied upon to conclude authoritative agreements, if not treaties. The one category of persons you did not mention that is important in such a process is the military. One of the problems in the negotiation of some recent agreements has been that there has been insufficient direct military input. There might have been input by military lawyers but not by the military officers and planners themselves. If the military are expected to execute agreements, they have to be involved in their drafting, even if they are only informal agreements.

Secondly, on the question of the application in wartime of peacetime treaties on environmental protection, there seems to me to be a danger in lawyers trying to assert universal applicability of such treaties, and it will tend to invite—as indeed we have been warned this morning—a reaction that this is pushing progressive law too far in an unrealistic direction. What surely is needed, and is scarcely being mentioned at this conference, is an analysis of what actually happens and the extent to which in wartime—whether between belligerents, or in relations between belligerents on the one hand and neutrals on the other—international environmental agreements of one kind or another are in fact implemented. That kind of factual survey would actually be of enormous assistance in trying to develop the notion that there can be some practice in this field even in the absence of a firm general rule which presents obvious difficulties.

Lastly, a question which is directed particularly to Dr. McNeill, and it relates to the U.S. document on Iraqi war crimes that was presented to the United Nations in March 1993. He indicated in his remarks, but rather indirectly, that the mysterious gap of a year between the conclusion of this document and its presentation to the United Nations had been used to try and persuade some States in the region to take the issue of war crimes seriously and to take part in a possible

collaborative effort for the punishment of war crimes. But I wonder if you would be direct with us as to whether anything like that did happen, and if so, what was said against the idea of war crimes prosecutions in respect to the aftermath of the 1991 Gulf War.

Professor Shearer: I will respond to the first part of the question. The exact composition of any working group or group of experts would, of course, have to be determined by the particular project. My concern was not to identify precisely who should do any such drafting of a restatement or progressive development but rather to warn against the obvious dangers of preceding by consensus in largely politically driven diplomatic conferences. But I think the points you have made are very valuable. As to the application in armed conflict of agreements on the environment designed to operate in peacetime, it may be too crude to suggest, as I did yesterday, that the law of armed conflict is less *lex specialis*, and as a result, all of the other law went out the window as soon as armed conflict began. That is not how I see it at all, but rather that the existence of general standards of protection of the environment that come from agreements that are designed to operate in peacetime would, of course, be factored in as part of military necessity and proportionality. So that is where they would play a role.

Dr. McNeill: I can respond to question three. As to question number two, an analysis of what happens in time of war, I think that it is probably a good idea to have a more precise idea of just what we can expect with regard to all of the many provisions that we have heard discussed this week, and whether there is a fundamental, or at least a generic question, as to the applicability of these various peacetime rules in time of war, if any. We know Professor Bothe is looking at part of this problem in his International Law Association work in the Committee on Maritime Neutrality, for example, and perhaps that will bear fruit.

With respect to the third question concerning U.S. documentation, I could say a couple of things. To put it in context, after the end of hostilities in the Gulf there was a great deal of interest in the possibility of prosecuting war crimes. But as we can recall, conflict in that region did not terminate with the cease fire. In fact, the Iraqi Government turned its attention to the Shiites in the South, the Marsh Arabs and so forth, and have continued to prosecute a very, very distasteful purge in that part of their country of any possible opposition, based on sectarianism or otherwise, and this has created a complexity in terms of prosecution. There was interest immediately in examining what could be done about these alleged criminal activities of the Iraqi Government and, as we know, suggestions have been made of genocidal activities in this respect. There was also a question about scope. If there was to be a war crimes tribunal, ought the pre-war activities of the Iraqi Government be looked at again? Once again, suggestions had been made

about genocidal activity regarding what the Iraqis had done in the north, the use of gas against the Kurds and similar allegations.

So there were a number of very difficult problems. Added to those was the political context which suggested there were continuing problems in the enforcement of Security Council Resolution 687 sanctions and the need to keep the political aspect of the Coalition together through those difficult days. Given these considerations, there was not a great deal of interest in pressing immediately for the establishment of a war crimes tribunal to deal with Iraqi war crimes. Our proposal was simply to establish a commission, and we made that proposal officially. It was not until April 1993 that the Secretary of State made that public.

I noticed in a recent book on the Gulf War entitled *The Generals' War* that the allegation was made that we did not provide our documentation to the United Nations until the spring of 1993 because of a political decision taken by the Bush Administration, impliedly because they were embarrassed that Saddam Hussein was still in power. I think this is completely untrue and groundless. But the allegation was made in the book. I think people are just reading much more political intent into this, in terms of U.S. domestic politics, than is the case. In fact it is a complicated matter. We know that there is a lot riding on the success or failure of the other war crimes tribunals. We know the complexities that they are facing. Nevertheless, we feel that a commission would be a good idea at this time, and we hope that there will be renewed interest and support in the international community for establishing it.

Thank you.

Dr. Fleck: May I just offer a short word of caution as to the question on the applicability of peacetime rules. I propose that we not answer this question too quickly. For example, it has been put forth very convincingly by Professor Oxman that a specific prohibition of peacetime international law would not be applicable to warships. However, in these cases national policy must be considered and my argument is that military operations start outside armed conflict operations. In most cases conflict arises out of internal situations rather than what we, in former times, have defined as declared wars or international armed conflicts. So the question is open, and the answers can be given in case studies only.

Thank you.

Professor Michael Bothe, Johann Wolfgang Goethe University, Frankfurt, Germany: I could just start by saying that I agree with just about everything that was said except the general conclusions which most of the speakers drew from their detailed explanations. But I think I owe it to my friend Wil Verwey to break a little bit of the peace which seems to reign around the room here. I understand that the

ICRC does not want to put into jeopardy the trend which exists to make Additional Protocol I a universal treaty. But this understandable stance should not lead to a document which lags far behind, in certain respects at least, the state of the art. I think in some respects this approach is not compatible with general international law. It is, at least in part, also in contradiction to Additional Protocol I. And it is also not quite in pace with the general sense of environmental responsibility felt by the military, the existence of which for me is one of the major results I take from this meeting.

Now let me explain as briefly as I can. In guideline number five, you twice find the expression that general international law applies as long as this is not inconsistent with the applicable law of armed conflict. I do not quite know what that means. It would mean something if you construed the laws of armed conflict as justifying something which is forbidden under the law of peace. But the law of war does not justify anything in this sense. It puts limits on violence, but it does not legally entitle States to use violence. This is a fundamental distinction which has to be made. In addition, these two sentences seem to be premised upon understanding that it is always the law of war which has primacy over peacetime rules. This is certainly not true in relation to the rules affecting the relationship between the parties to the conflict and third States. I have never said that these peacetime rules may in no way be affected. They are affected, and we can discuss to what extent they are affected. But a sweeping rule, as stated here, that it is the law of armed conflict which takes precedence over the law of peacetime relations between the parties to the conflict and third States is, in my view, erroneous.

The second point is the incompatibility of points 8 and 9 of the Guidelines with Additional Protocol I. According to point 8, destruction of the environment not justified by military necessity violates international humanitarian law. This is certainly true. According to point 9—the general prohibition to destroy civilian objects unless such destruction is justified by military necessity—also protects the environment. Both provisions seem to imply that destruction of civilian objects is permissible if justified by military necessity, which is wrong.

The correct statement of the law you will find in Dr. McNeill's enumeration of principles. A correct statement of the law is also found in principle 4 of the Guidelines—you may only attack military objectives. But it is not compatible with what is implied in point 9. So to say the least, points 8 and 9 are misleading, and misleading guidelines, I think, are dangerous. That is why I prefer the numeration of the applicable law I find in Dr. McNeill's paper. I regret the absence in both papers of one legal norm which was mentioned by Professor Oxman, and that is the Martens Clause, which I think is important.

I said I agreed with everything except the general conclusions. Now the general conclusion of those who have intervened seems to be that we do not need any new

law. But having listened to the debate, there is one thing in my mind which is certain and that is the uncertainty of the law. It can not be true that armed conflict has no effect on the operation of a number of peacetime obligations. It would be unrealistic, and unrealistic law is bad law. This is the reason why this effect of armed conflict has to be clarified. If those who have negotiated environmental treaties had enough to do with drafting them and did not want to complicate the negotiations by answering the question whether and to what extent a treaty was applicable in times of armed conflict, then something remains to be done, at least in terms of clarification of the law.

But what else might we want to do? I think a very good point, and I had noted it before, is the creation of protected areas. There has already been some work done on that. The absence of this consideration in our discussions is perhaps due to the missing link between the United States Government and UNESCO, because this development takes place in a framework related to UNESCO. UNESCO is working on an amendment to the 1954 Hague Convention for the Protection of Cultural Property. There are suggestions to marry the list of protected objects under the 1954 Convention and the list existing under the Heritage Convention of 1972. Thus, work is going on in this field. The Heritage Convention also touches the question of natural sites. The proposals which are made do not go that far. But there is considerable discussion on how to protect certain sites. If we want to do that, we must, again, take into account the reality of armed conflict. There must not only be a duty to protect the sites, but also a duty to demilitarize them and not to use them for hostile purposes.

There are a few other thoughts I would like to add. It seems to me that generally the sense of the meeting has been that environmental concerns have to be included in military planning, in the development of new weapons and in the preparations of attacks. That should not be controversial, but this is something which is not yet clearly stated in the existing law. I think that the paper by Dr. Tanja, and I hope also my own paper, have shown that the existing law relating to grave breaches with respect to the environment is not adequate. Thus, there are lots of points, specific points, where the law needs, or at least merits, some development and clarification. That is why I am most attracted by Ivan Shearer's proposal of some kind of a restatement. I agree that the negotiation of new treaties would be a difficult, if not a dangerous, undertaking, but I think the environment deserves some courage on our part in this respect.

Thank you.

Dr. Gasser: In response to Professor Bothe and his critical comment on the Guidelines which I take partly, but not only upon myself, there were many experts working on this text. I should like to remind you that it is a condensed version of the relevant provisions and it has to be taken as such. Of course, it should not be

wrong, and I do not think it is. The terms have to be understood in their context. All references to the sources of the law have been provided in the text and they are a part of the Guidelines. These Guidelines are here to convey the message, to disseminate the message, and particularly to convince those who are halfway between the lawyers and the operators to take them up, to incorporate them into a training program, to include them in instructions.

The Martens Clause appears in the Guidelines in paragraph seven.

I am very sorry that Admiral Doyle also finds the Guidelines redundant. Again, we had military experts who helped us and who, we hope, put us on the right track in order to respond to the needs of those who have to know the law and to act in compliance with the law. I do not think that the Guidelines will have to be modified in six months or in one year. They are really the résumé we made of the law and of the resultant international obligations. True, there are proposals for a diplomatic conference on new law in this field. But I think the Guidelines are going to stand and be useful for quite a while.

I should now like to comment on another point regarding the ICRC's position. We would definitely not be happy if the ICRC were to be understood as being opposed to anything being done in this field. This would be a misinterpretation of the ICRC's position. In our view, "existing law" includes Additional Protocol I, the first treaty in the history of international humanitarian law that has specifically expressed environmental concerns. We do not share the view of those who declare that they are happy with "existing law" and at the same time reject Additional Protocol I.

Secondly, a new codification in the field of environmental protection is not high on the ICRC's present list of priorities. The question is to know where the gaps are and what specific proposals are available to correct them. We ourselves do have some specific proposals, such as adding attacks on the environment to the list of grave breaches, but they must be further developed, and clearer details must be given of what can actually be accomplished with a new codification.

And thirdly, another reason why the ICRC is not very eager at present to move ahead in this direction is quite simply that we have so many other tasks we must address first. One of those priorities is also related to environmental protection and that is the question of landmines. I have raised the question of mines, particularly anti-personnel landmines. One of the very serious attacks on the natural environment are these hundreds of millions of landmines all over the world. So this is one field where we are working, and I am sorry to say that given these circumstances—and I am referring here also to our operational priorities in Yugoslavia and Rwanda and elsewhere—a formal codification exercise is rather low among our priorities.

Professor Oxman: First of all, the reason I am not a successful entrepreneur is that I always discover that if I do enough research that I have never thought of anything new. Even in 1991, when I proposed the protected areas idea in my testimony before the Senate, it was not even new then. But I do want to say that there is an entire science of successful negotiation that talks about the architecture of even the room in which the negotiation is conducted and by the way, I think, while this conference is not a negotiation, the Naval War College has done a superb job in this regard. My point is that I do not think that the architecture of UNESCO is likely to be highly conducive to the successful outcome of a ratified treaty on an important military issue. That is not UNESCO's fault. It is in fact due to the very nature of who represents States at UNESCO. I do not think you can get past the first step when the kind of confidence and communication that exists between the affected interests and their own representatives simply has not been built up over many years. For UNESCO to ensure that environmental values are represented is one thing, but I think one has to pay very close attention to the question of forum. Also, I want to emphasize that I am not sure that the distance between me and Professor Bothe on this point is that great. I said it was not quite as easy to make the move as he seemed to imply. I did not say it was an impossible move.

Thank you.

Professor Theodor Meron, New York University: I would like to relate our discussion perhaps to some kind of a broad political context. It is clear that we have been grappling with the question of how to deal with the distinction between international and non-international armed conflicts. We are all aware of the fact, of which Dieter Fleck reminded us today, that most conflicts are non-international in character. Yesterday I advocated in my short talk a sort of pragmatic expansion of law of war principles pertinent to the protection of the environment to non-international armed conflicts, and I certainly support that, but I would not limit this to the very focused, discrete approach advocated by Bernie Oxman. We have seen a tremendous change recently in views of the international law of armed conflict. If we read the Guidelines prepared by the ICRC, which have been formally endorsed by the General Assembly, if we read the new German military manual, if we read NWP 9 and the new NWP 1-14M, we see that, pragmatically, as a matter of policy, we are not unduly concerned with the traditional distinction between various types of conflicts and we are pragmatically prepared to apply the entire law applicable to international armed conflicts across the board.

In a somewhat different context, the Security Council and the General Assembly adopted this pragmatic approach in the Statute for the criminal tribunal for Rwanda, being prepared to criminalize violations of common Article 3 and Additional Protocol II, despite the fact they are not incorporated into the list of

grave breaches. I think we ought to reflect on whether this enlightened and practical and pragmatic approach reflects the views of the international community. Remember the sentiments expressed by representatives of States during the last Geneva Conference on Protection of War Victims. Countries like India and China were completely inflexible regarding anything pertaining to the traditional reserved domain of sovereign national territory. They were not willing, pragmatically, to expand broad rules applicable to international armed conflicts to non-international armed conflicts. I would like to draw our attention to this growing north/south gap, because I do realize that, formally, the General Assembly gave its endorsement to the ICRC guidelines; but it did not go into detail. Sooner or later, this approach that we are advocating will confront resistance from some States.

Thank you.

Captain Roach: Let me add a footnote to what Professor Meron just said, that we should look and watch very carefully the negotiations beginning next week in Vienna to see whether or not the United States' proposal to extend the material scope of application of the Second Protocol on Land Mines to non-international armed conflicts, is in fact, acceptable to the international community. I think that that will be a very significant indicator of where we are today.

Dr. Ronald DeMarco, Office of Naval Research, U.S. Department of the Navy: I would like to address the protection areas issue for a moment. Personally, I think that is a nice idea. I also think it may well be fairly impractical unless we talk about a protected area as the land itself. If we are looking at it from an environmental context, we have land, but we also have flora and fauna involved. The latter are not restricted in a land sense, nor are they dependent upon only that chunk of land. Predators and migraters come in and come out. You can attack a legitimate target some distance away and destroy the protected area. Other than an overt attack on the protected area, I am not sure how one would implement the protected areas. I was trying to think of examples and I guess Yellowstone Park is one thing we might want to protect. There could be a legitimate target in Montana which, if hit, results in the polluting of a stream which in turn causes environmental damage in Yellowstone Park many miles away. How would one adjust to that type of event beyond the specific areas that you are trying to protect?

Professor Oxman: I am not going to suggest for a moment that there is a single easy solution. I frankly think if we had a treaty, and if we had a designation system to which no one objected that designated Yellowstone Park as a protected area, and then once people became comfortable with it and you said,

"well, you know we have to try to deal with other matters outside the Park boundary as well," and we approached it in a similar pragmatic way, it is possible to work the problem. If the Yellowstone environment is in fact dependent upon natural processes that exist in the immediate vicinity of legitimate and major military targets, we have a problem. In the end, I suppose what you have to try to do is move the targets. In some cases that may be practicable, in other cases it may not be. But I am not willing to say do not take step A, because it is not the total answer to the question.

I happened to be in South Africa last month and one of the points which was made to me by the environmentalists is that while the natural migration patterns of the animals that are protected in Kruger National Park are east/west, the Park's orientation is north/south. The government is now trying, in a series of interesting measures, to push the park west, by breaking down the fences between the Park and private reserves and putting the fences on the other side. You do what you can; it does not fully answer the problem. You must try to address subsequent problems further on.

It is also my understanding that, for example with the Monarch butterfly, if you were able to protect certain discrete sites along its migration route and at its winter haven, you probably would have done a great deal to preserve the species. Everything? No, but a lot, and that would satisfy me.

Let me also say that I imagine the situation to be practical, in which we are designating environmentally protected areas against both significant civilian and significant military use. Partly because I think you have to be consistent, partly because it will help solve the problem that Professor Meron raised, and partly because if you are going to go put a steel factory there and say "we will shut it down if we go to war," that is not practical and people are going to attack it.

I also think that the concept of protected areas permits you to form a very interesting coalition between the environmentalists and the military. The environmentalists may like this idea because you are shutting down certain areas not just from militarization, but from industrialization. On the other hand, I think that people who worry about what I call juridical Maginot Lines in the military would recognize that if a State has to shut down the area completely even in peacetime, fanciful notions of what this is all about may disappear. I could see the possibility of a mutually reinforcing coalition between military concerns and environmental concerns on this issue.

PART TEN

CONCLUSION

Chapter XXXIX

Concluding Remarks

Professor John Norton Moore

Professor Jack Grunawalt, Naval War College: We have now arrived at one of the most significant segments of this program. It is a great privilege to have Professor John Norton Moore address us today. I would also like to take this opportunity to welcome Barbara Moore to Newport. Barbara, I hope we see you up here more often.

John, I have been present on any number of occasions where you have been introduced to gatherings, large and small. I can recall only one set of introductions that came even half-way close to being adequate. Unfortunately, it was half an hour in duration. We do not have quite that much time, so in keeping with the standards that we have been holding to throughout our deliberations, I will keep these remarks short. John is certainly very well known to all of us, but I will quickly mention that he is the Walter L. Brown Professor of Law at the University of Virginia. He is the Director of the Center for Oceans Law and Policy, and of the Center for National Security Law at that institution. John is also the former Director of the Graduate Law Program at Virginia, which he chaired for over twenty years. As you are all fully aware, he has held any number of critical positions within the United States Government, whether in a consultative role, or as chairman or special counsel. The list of his titles, positions and accomplishments over the years, as I was remarking the other day, exceeds in length the credits for the movie "Gone With the Wind." Without further ado, I just want to say it is indeed, John, a distinct pleasure and a great privilege for me to present you to our conferees. Ladies and gentlemen, our concluding speaker, Professor John Norton Moore.

Professor John Norton Moore, University of Virginia: Professor Grunawalt and distinguished participants, it is a special pleasure for me to be with you at the Naval War College. This College has a long and distinguished record of contributions to international law and this conference is yet another milestone in that record. I believe Admiral Stark, Dean Wood and Professor Grunawalt can be justly proud of their College on this occasion, and also of their own great personal contribution to that record over the years.

Our task, both at this conference and in its aftermath, is to enhance the rule of law to lessen environmental damage in war. In focusing these concluding

comments, I would like to close the circle and take you back to the opening comments of Conrad Harper, Legal Advisor to the United States Department of State, in his excellent paper, with which I strongly agree. You will recall that Mr. Harper suggested that the principal task before us in enhancing the rule of law in this area is compliance with the existing legal regime, and not in simply further tweaking the normative system.

Now that does not mean that we should not focus on education and on providing guidance to militaries all over the world more effectively than has been done in some countries. Nor does it mean we should not seek to work in every way possible to make the law in this area more visible. But it does suggest that the core issue is not an endless continuing effort to devise new norms, but rather it is to ensure compliance with existing norms.

The genesis of this conference, as well as many others over the past five years, is well known to all of us. It was the shocking and massive oil dump, not spill, in the Persian Gulf by Saddam Hussein, and the torching of oil wells in that conflict. I will not repeat all of the details here of the dumping of oil that was 42 times larger than the *Exxon Valdez* spill off Alaska, or of the torching of over 700 wells that took eight months to extinguish. Let me suggest, however, that when you walk through those burning fields, as I did a few days after the end of the war, it was an altogether different feeling and experience than simply talking about them here. There was the feeling of an extraordinary environmental disaster and an extraordinary and shocking violation of the laws of war.

Rather interestingly, in the aftermath of this conflict, instead of a clarity of voice in the international community that clearly pointed the finger at the perpetrators of this harm and specified with the same clarity which provisions of international law were violated, much of the public debate instead focused on the following two premises:

First was the premise that massive ecocide is simply "inherent in modern warfare." The implication being that there is really no point in trying to fix responsibility. Second, was that a new "Fifth Geneva Convention," or perhaps some more modest changes in the law, would fill the existing lacuna, which presumably had caused this harm, and would deal with the ambiguity that presumably, if closed, would resolve the problem.

In addition to their logical inconsistency with each other, both premises are remarkable for their falsity. There is nothing, if we look at the first premise, inherent in modern warfare that indicates anyone needed to torch the wells in Kuwait or was required to intentionally dump 42 *Exxon Valdez*'s into the Persian Gulf. Anyone who is generally familiar with the development in this area from World War II through the Korean War up to the Gulf War, understands that despite the enormous potential for destruction, especially with the newer weapons that we have in our military arsenals, there actually has been movement toward

greater discrimination in targeting that is unmistakable. The Gulf War was a very good example of precisely that.

Nor were these events in any way the responsibility of the United Nations Security Council-authorized Coalition. The question of legal violation by the Iraqi high command was absolutely clear. We need not get into the debate about the proper interpretation of the ENMOD Convention or Additional Protocol I, to understand that those actions were in clear violation of the Hague Rules and, almost certainly, the Fourth Geneva Convention. There is no real debate about the illegality of what happened.

Indeed, I would argue that the totality of the evidence as to why Saddam Hussein chose to carry out these shocking actions is exactly as Jack McNeill indicated in his paper. This ecocide did not involve serious war-fighting of any kind. This was not about the fighting of a war. It was an effort to hold hostage the environment of the Gulf and the resources of Kuwait in the hope that by doing so, Saddam Hussein would be able to deter the Security Council-authorized defensive response against his aggression.

That is what I think is properly called: "environmental terrorism." This was not war-fighting. We could go into all the details if you would like. I have seen much of the fascinating and telling evidence of when and where the charges were placed for example—which was very early in the occupation—which corroborates the notion of intentionally blowing the wells below the well head so that they could not be shut off, and a variety of other bits of evidence that this was not war-fighting or something inherent in war. This was environmental terrorism by a person whose principal *modus vivendi* in the world is, in fact, terrorism. It was an effort at a bluff that did not work. Sadly, it had horrific consequences for the Gulf.

Now, let me turn to the second premise. Does anyone believe that a man who intentionally violated the non-aggression provisions of the United Nations Charter, who ignored multiple binding Security Council Resolutions demanding Iraq's withdrawal from Kuwait, who was violating the Nuclear Non-Proliferation Treaty and the Safeguards Agreement, who was violating the customary international law prohibitions underlying the 1972 Biological Weapons Convention, and who was engaged in multiple, explicit and clear violations of the Third and Fourth Geneva Conventions, among other points, would somehow have been deterred and would have said: "I would not have done these things if you simply had a Fifth Geneva Convention?" Does anyone seriously believe that Saddam Hussein was simply mistaken about the permissibility of his actions; that it was really all a matter of ambiguity in the law, and if only his lawyers would have told him correctly, he would not have undertaken any of these actions?

Those who call for a "Fifth Geneva Convention" as the cure-all for protecting the environment during armed conflict are avoiding responsibility for taking action against Iraq for its absolutely blatant violations of existing law. Sadly, those

false conclusions, paradoxically in opposition to the intention of those that put them forward, have, I believe, severely enhanced the risk of further environmental destruction in these settings, enhanced the risk of additional aggression, and reduced the potential for the guilty parties to shoulder responsibility for those violations.

Let us think about it for a moment. If war itself were responsible, we would have no need to pursue the responsibility of either side for violations of community norms. If war itself were responsible, then those acting in defense, simply by virtue of the fact they are acting under the United Nations Charter to prohibit aggression—to stop the aggression or to defend against the aggression—presumably are as equally responsible for all ensuing damage as those that institute the aggression. If it is ambiguity in the law that is responsible, then there is no basis for pursuing individual responsibility or for developing a compliance policy.

The reality is absolutely in opposition to those premises and the false conclusions drawn from them. As such, those premises have done a great deal of mischief. The Holocaust did not happen because of some kind of legal ambiguity. The genocide perpetrated by Pol Pot in Cambodia did not happen as a result of some kind of legal ambiguity. The series of violations of the Third and Fourth Geneva Conventions, the systematic torture of Coalition POWs, and the systematic torture of men, women and children in the occupied areas of Kuwait did not occur became of some kind of uncertainty about the law.

I would like to paraphrase a statement the current Commander in Chief of the United States made during the presidential election campaign. You will recall that he said: "It is the economy, stupid!" I am going to be a little more diplomatic because my comments are not addressed to the participants in this Symposium who I know fully understand these points. I am going to simply say that the real problem in enhancing the rule of law in this area is "compliance!"

Now a few comments about the problem of compliance; about the compliance side of the equation and where we need to go in enhancing the rule of law. The first relates to this question of what should be done about the norms. Is there a need to further tweak the norms in this area? I think the cautionary statements we have heard from many of the participants in this conference are very apt.

I was struck by the case that Professor Oxman made to the effect that if we do this wrong, it will inhibit the effectiveness of very important defensive responses against aggression. Maintaining the right of our military to effectively defend our Nation and enhance the U.N. Charter principles is important. If we get it wrong in this area, we have the potential to shoot ourselves in the foot. I think Bernie is correct in that.

I have also been struck by some of the debate in the law reviews. Confusion exists between the differences in the ENMOD Convention, which is primarily an arms control treaty, and Additional Protocol I, which is primarily a law of war

treaty. It is entirely appropriate in a setting which is focused on banning new kinds of weapons, to have a fairly low-standard for the impact of those weapons on the environment. On the other hand, where you are dealing with a totality of existing weapons and how they might be affected, with all of the kinds of contextuality that Admiral Doyle indicated, one might want to have a far higher threshold in terms of triggering of the conventions and ultimately proving potential criminal responsibility. And the latter, I think, is very important as well. If we end up with standards that are extremely vague, instead of concentrating on the most important and outrageous violations, I think we would do potential harm to the compliance side. How are we going to embrace the idea of personal criminal responsibility for members of the military, for example, in settings in which the standards are extraordinarily vague and unclear. I think States would rightly resist that. And the result is that if we are too broad in what we write, the "perfect" becomes the enemy of the "good" and the enemy of critically needed compliance.

My second point is that we should not believe that this issue of compliance is unique. This is, sadly, a critical part of the strengthening of international law today, right across the board, and emphatically in the laws of war generally. The notion of systematic violations of the Third Geneva Convention and the systematic torturing of POWs in virtually every war that we have seen in the last 20 years, is something that deserves our attention and suggests that there is something fundamentally wrong; that we need a compliance policy. I personally believe that international law in general, as well as international lawyers, are beginning to understand the compliance side and are prepared to stop the endless debate with the realists in which we have to prove that international law exists. Of course it exists! The rule of law is critically important and we must get on with the task of compliance.

There is a third point to be made about compliance. The reality is that the system that we are in, the system of international affairs, is a decentralized international system that depends primarily on the effectiveness of individual State actions and a network of reciprocities and counter-reciprocities. This is not to argue against efforts that we obviously need to pursue, through time, to strengthen international community mechanisms for enforcement. It is to strongly urge, however, that we not say compliance is impossible now and has to await some kind of international criminal tribunal or some other kind of panacea that presumably is going to arrive tomorrow, but tomorrow never comes.

Another point that is terribly important in dealing with compliance is that we have a great deal of new information today from the War in the Gulf about the causes of war and about where these violations are coming from—both the aggressive attack and in the setting of the violations of the laws of war broadly. I teach a new seminar in this area, and much of the materials I use came out of my work over a period of years trying to set up and run the U.S. Institute of Peace. We

held hearings which included the best people from all over the world, asking what is the state of human knowledge about where wars come from and what can we do about it? Not surprisingly, there is a great deal that we do not know. But there is new information that is beginning to emerge that is very relevant to compliance. It relates to things that came out of the statistical data about something called the "democratic peace:" and something called "demicide." We were shocked when we discovered that totalitarian regimes were slaughtering their own people at a rate that far exceeded total war casualties throughout the 20th Century, including the Holocaust of World War II.

We began to learn a number of things: One is that non-democratic regimes, particularly totalitarian regime elitès and vanguard parties, are often out of control aggressors. There is something inherent in the nature of government failure in those systems which suggests a propensity for major violations of community norms. When that happens, external deterrence is the only thing that will ensure compliance, that will deter war in the first place, and, if deterrence fails, curtail violations of the laws of war such as the manner in which we prevented Saddam Hussein from using the biological and chemical weapons that he possessed.

There are two corollaries that have come out of this in terms of our focus on these points. One is that we have to start asking questions about law and the legal system in deterrence terms. To what extent is the existing law serving as a modality to deter those States that are prepared to undertake these activities. That, by the way, has two sides to it. The critical element here is that you have to treat aggression and defense differently. If you had a legal setting that, in its net effect, restrains the law-abiding defensive side, and the aggressor is simply prepared to ignore it all, law actually may be a cipher or it may even be a negative, in terms of really avoiding war or brutalities. This is a serious issue that we as lawyers really have to look at.

The second corollary is equally interesting and perhaps more promising. We are beginning to learn that in the application of deterrence, it is not States as a whole that are aggressors. It is not Iraq as a whole. It is not the Iraqi people as a whole. The Iraqi people as a whole are not somehow uniquely evil in terms of what has been happening in the Gulf any more than the German people were inherently evil as a result of what happened in World War II. Rather, what is going on is the mechanism of government failure. Regime elites are making those decisions and imposing the costs of them on their own populations. In fact, they tend to slaughter their own population as well. Saddam Hussein is slaughtering his own people at a rate after the war that is probably something like one to two times the entire casualties, and maybe considerably higher, than were incurred in the war itself. The Iraqi regime fits the model perfectly that we are beginning to see from a lot of this empirical data. What that suggests is that deterrence modalities that focus

on the regime's elite may, in many respects, be one of the more promising ways to begin to look at compliance.

Now, let me just give you another way to think about this, that comes from an entirely different theoretical perspective, but reaches exactly the same conclusion. That is the recent literature on the question of trying to promote cooperation. How do you generally promote cooperation, in settings economists call the "prisoners dilemma," which sadly is a reasonably good description of much of the international system. There is no centralized Government to effectively require both parties to a dispute to agree to play by certain rules for their best interests. There are incentives to cheat, such as Saddam Hussein's conclusion that he could gain a leg up on the Security Council-authorized Coalition by exploiting the Coalition's environmental concerns. Raising environmental consideration to an important level would, in Saddam Hussein's calculus, prevent the Coalition from doing anything once they saw what he was prepared to do in the Gulf.

Now, what in that setting has some of the work suggested? The most provocative work has been done by Professor Robert Axelrod who, a few years ago, did a book on promoting cooperation in which he suggested to a whole series of social scientists that they participate in a computer game designed to compete one with another to tell us what would work best in promoting cooperation. Some of the country's top economists, game theorists, statisticians, mathematicians and others submitted programs. They went through two iterations. On both occasions, a very simple program won. That program was called: "tit-for-tat." It was very simple. You try to cooperate. You work on it. And when you are met with the first instance of serious non-cooperation, you respond with serious non-cooperation. That obviously does not mean, in terms of what we are talking about that you destroy the environment on the other side. It does mean that deterrence again is the key. If you want to promote compliance with international law, cooperation with the rules, we have to focus on deterrence. That is a central message for the future. Now let me give you one example of that: the dumping of oil by Saddam Hussein into the Gulf, roughly 470 million barrels of oil, was the largest in human history. My estimates, from the top scientists at the National Oceanic and Atmospheric Administration, suggest it was two and a half times larger than anything else in human history. What was the second largest? It involved about 176 million gallons of oil and was a tie between the out of control IXTOC well in the Gulf of Mexico, which was an accident, and Saddam Hussein's air strike on the Iranian oil cargo loading area, during the Tanker War, presumably once again with the intent to cause a massive flood of oil into the Gulf. Now what would have happened if the international community had responded strongly at the time of this first Saddam Hussein action? What "tit-for-tat" theory tells us, indeed the author of the book argues that is what even *evolution* tells us, is that what is successful will be repeated. What I suggest is, of course, not quite that simple. But the point is

that "tit-for-tat" is a terribly powerful mechanism. We have to consider that the key to compliance is deterrence.

Now, let me go on to the final point here which is about process—about how we proceed. Let us set up, within national governments, compliance task forces to look at this question and come up with a range of possible solutions to it. Let us get together with our friends and allies internationally, with those who are serious about the laws of war, and begin to address a range of things that we might do. What are some of those things? One thing that is promising is the focus on regime elites, including not just the leaders but the top echelon right under them that are executing these violations. We need to name them early in the process in ways that will get their attention.

This whole question of criminal responsibility that the United Nations Security Council is beginning to get into, in the Bosnia setting and in the Rwanda setting, is also promising. I think the whole notion of rethinking civil responsibility and individual responsibility is also an interesting possibility. Why should international law have this endless series of reasons why these people cannot be sued? You cannot bring a civil suit against Saddam Hussein in any country in the world in relation to some of these events, even though the Nuremberg principles tell us he is criminally liable in that setting. The Iraqi State's responsibility for damages and for redress of damages is clear, and here, of course, you do have Resolution 687 that Conrad Harper talked about. I think we should examine de-recognition of regimes by individual States and, possibly, by the United Nations. I think we should be looking at the limits of lawful and appropriate reprisals; not directed at hitting the environment, obviously, or other protected targets. We should look at retorsion. Perhaps we should vary our war aims when these kinds of violations happen. Announce that we will not stop at the border of the country when we force you out of occupied Kuwait. We are going to go all the way to Baghdad if you commit certain kinds of violations. I also think that such violations ought to be taken into account in future normalization of relations, if they can be normalized at all. But the point I am making is that it is time to begin thinking creatively and broadly as to what might be done.

Let me just sum up briefly by saying that the core concept of the rule of law is in controlling government. That is what the real meaning of the rule of law is about. We are finding from the data that there are a variety of out-of-control totalitarian regimes that are the fundamental problem. We need to figure out how we can more effectively control their behavior through the rule of law. It is time once again, to say "Never Again." But it is not enough to endlessly say, "Never Again." This time our language must be backed with effective action. And ultimately there is nothing but the rule of law that can serve as the basis for that action.

Thank you.

Professor Grunawalt: Thank you John. I know we could not have asked for a more fitting closure point for our deliberations. John, in his usual fashion, has in fact focused the issue where it belongs. We have talked in a variety of situations this past week about the failure of compliance, about the lack of political will to enforce the rule of law. I believe that there is, amongst most of us in this room today, a sense of frustration that, other than raising our voices and being heard, there is not a great deal that we individually can do in the compliance arena in the broader sense. But I would like to take one more minute of your time to pursue some thoughts that have occurred to me in the past two and a half days.

The operational commanders that appeared before us at times displayed a certain amount of "discomfiture," using Steve Rose's description, with our deliberations. I would suggest to you, however, that these commanders are indeed comfortable with the fundamentals of the law of armed conflict. They are indeed comfortable with the precepts of military necessity, of humanity, and of proportionality. I believe that they have the requisite understanding, that they have internalized the law of armed conflict. Those of us who work in this field see this across the board from our operational commanders; the internalization of their abiding obligation to minimize collateral damage and incidental injury. It is my surmise that some of the "discomfiture" that we may have seen here is a reflection of their concern with the actual, or perhaps perceived, propensity of some scholars, scientists and lawyers to see protection of the natural environment in terms of absolutes; in terms of absolutes in respect to weaponry, targeting, and areas of special protection. Absolutes are not in the general paradigm that we understand the law of armed conflict to be. And, if that is the case, then I think that we must redirect our rhetoric and make it more comprehensible to those who we are going to call upon to execute these rules in the crucible of combat.

And this calls to mind something else. We heard from Gary Vest yesterday, and some of you have remarked upon his observation, that we have achieved a remarkable peacetime enculturation within our military with respect to the environment. I think that goes without question. And we also heard Gary state that our operational commanders carry that culture with them into combat. They do not go "brain dead" on environmental issues when they go to war.

I suggested on Wednesday that well-framed, comprehensive, and broadly accepted international conventions governing armed conflict are extremely important. There can be no question about that. But I would also suggest that in some respects this importance is eclipsed by the importance of ensuring that the actual behavior of the war fighter is in compliance with these international norms. I suggest that compliance is not so much the function of international instruments as it is the more mundane role of development of responsible, universally accepted military doctrine employed through military manuals, through education and training and, ultimately, through operational planning and rules of engagement.

We have heard that addressed eloquently by a number of our speakers here today and I think that is worth recalling as we conclude this conference and go our separate ways.

I am parroting Admiral Doyle to some extent, but for those of you who will have occasion to address, in the future, protection of the natural environment during armed conflict, and here I am talking about the whole spectrum of conflict—international armed conflict as well as non-international armed conflict—bear in mind that our purpose is the protection and preservation of the natural environment within the framework of the law of armed conflict. What I am getting at here, is that I think it is critical that as we do our work, as we each play our role, that we bear in mind that whatever rules, whatever international norms that we might devise have to have relevance to the realities of the battlefield, and the realities of the operational commander who finds himself in the crucible of conflict. If not, I would suggest, we may be largely wasting our time.

I would like to join Ash Roach in his admonition to all of us as we leave here and return to our various callings, whether you are an academician, a scientist, a policy advisor, a war fighter, a war planner, an environmentalist, or wherever on that spectrum you care to place yourself, that we all have an obligation to enhance awareness of respect for and compliance with the rule of law and protection of the natural environment. That is a task for us all.

This Symposium on the Protection of the Environment During Armed Conflict and other Military Operations stands adjourned.

APPENDICES

Appendix A

INTERNATIONAL COMMITTEE OF THE RED CROSS (ICRC) COMPILED

GUIDELINES FOR MILITARY MANUALS AND INSTRUCTIONS ON THE PROTECTION OF THE ENVIRONMENT IN TIMES OF ARMED CONFLICT

I. PRELIMINARY

(1) The present Guidelines are drawn from existing international legal obligations and from State practice concerning the protection of the environment against the effects of armed conflict. They have been compiled to promote an active interest in, and concern for, the protection of the environment within the armed forces of all States.

(2) Domestic legislation and other measures taken at the national level are essential means of ensuring that international law protecting the environment in times of armed conflict is indeed put into practice.

(3) To the extent that the Guidelines are the expression of international customary law or of treaty law binding a particular State, they must be included in military manuals and instructions on the laws of war. Where they reflect national policy, it is suggested that they be included in such documents.

II. GENERAL PRINCIPLES OF INTERNATIONAL LAW

(4) In addition to the specific rules set out below, the general principles of international law applicable in armed conflict—such as the principle of distinction and the principle of proportionality—provide protection to the environment. In particular, only military objectives may be attacked and no methods or means of warfare which cause excessive damage shall be employed. Precautions shall be taken in military operations as required by international law.

G.P.I Arts. 35, 48, 52 and 57

(5) International environmental agreements and relevant rules of customary law may continue to be applicable in times of armed conflict to the extent that they are not inconsistent with the applicable law of armed conflict.

Obligations relating to the protection of the environment towards States not party to an armed conflict (*e.g.*, neighbouring States) and in relation to areas beyond the limits of national jurisdiction (*e.g.*, the High Seas) are not affected by the existence

of the armed conflict to the extent that they are not inconsistent with the applicable law of armed conflict.

(6) Parties to a non-international armed conflict are encouraged to apply the same rules that provide protection to the environment as those which prevail in international armed conflict and, accordingly, States are urged to incorporate such rules in their military manuals and instructions on the laws of war in a way that does not discriminate on the basis of how the conflict is characterized.

(7) In cases not covered by rules of international agreements, the environment remains under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience.

H.IV preamble, G.P.I Art. 1.2, G.P.II preamble

III. SPECIFIC RULES ON THE PROTECTION OF THE ENVIRONMENT

(8) Destruction of the environment not justified by military necessity violates international humanitarian law. Under certain circumstances, such destruction is punishable as a grave breach of international humanitarian law.

H.IV.R Art. 23(g), G.IV Arts. 53 and 147, G.P.I Arts. 35.3 and 55

(9) The general prohibition to destroy civilian objects, unless such destruction is justified by military necessity, also protects the environment.

H. IV. R Art. 23 (g), G. IV Art. 53, G. P. I Art. 52, G. P. I I Art. 14

In particular, States should take all measures required by international law to avoid:

(a)making forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives;

CW.P.Ili

(b)attacks on objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas or drinking water installations, if carried out for the purpose of denying such objects to the civilian population;

G.P.I Art. 54, G.P.II Art. 14

(c)attacks on works or installations containing dangerous forces, namely dams, dikes and nuclear electrical generating stations, even where they are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population and as long as such works or

installations are entitled to special protection under Protocol I additional to the Geneva Conventions;

G.P.I Art. 56, G.P.II Art. 15

(d)attacks on historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples.

H.CP, G.P.I Art. 53, G.P.II Art. 16

(10) The indiscriminate laying of landmines is prohibited. The location of all pre-planned minefields must be recorded. Any unrecorded laying of remotely delivered non-self-neutralizing landmines is prohibited. Special rules limit the emplacement and use of naval mines.

G.P.I Arts. 51.4 and 51.5, CW.P.II Art. 3, H.VIII

(11) Care shall be taken in warfare to protect and preserve the natural environment. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment and thereby prejudice the health or survival of the population.

G.P.I Arts. 35.3 and 55

(12) The military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State party is prohibited. The term "environmental modification techniques" refers to any technique for changing—through the deliberate manipulation of natural processes—the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

ENMOD Arts. I and II

(13) Attacks against the natural environment by way of reprisals are prohibited for States party to Protocol I additional to the Geneva Conventions.

G.P.I Art. 55.2

(14) States are urged to enter into further agreements providing additional protection to the natural environment in times of armed conflict.

G.P.1 Art. 56.6

(15) Works or installations containing dangerous forces, and cultural property shall be clearly marked and identified, in accordance with applicable international rules. Parties to an armed conflict are encouraged to mark and identify also works

or installations where hazardous activities are being carried out, as well as sites which are essential to human health or the environment.

e.g., G.P.I Art. 56.7, H.CP. Art. 6

IV. IMPLEMENTATION AND DISSEMINATION

(16) States shall respect and ensure respect for the obligations under international law applicable in armed conflict, including the rules providing protection for the environment in times of armed conflict.

G.IV Art. 1, G.P.I Art. 1.1

(17) States shall disseminate these rules and make them known as widely as possible in their respective countries and include them in their programs of military and civil instruction.

H.IV.R Art. 1, G.IV Art. 144, G.P.I Art. 83, G.P.II Art. 19

(18) In the study, development, acquisition or adoption of a new weapon, means or method of warfare, States are under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by applicable rules of international law, including those providing protection to the environment in times of armed conflict.

G.P.I Art. 36

(19) In the event of armed conflict, parties to such a conflict are encouraged to facilitate and protect the work of impartial organizations contributing to prevent or repair damage to the environment, pursuant to special agreements between the parties concerned or, as the case may be, the permission granted by one of them. Such work should be performed with due regard to the security interests of the parties concerned.

e.g., G.IV Art. 63.2, G.P.I Arts. 61-67

(20) In the event of breaches of rules of international humanitarian law protecting the environment, measures shall be taken to stop any such violation and to prevent further breaches. Military commanders are required to prevent and, where necessary, to suppress and to report to competent authorities breaches of these rules. In serious cases, offenders shall be brought to justice.

G.IV Arts. 146 and 147, G.P.I Arts. 86 and 87

SOURCES OF INTERNATIONAL OBLIGATIONS CONCERNING THE PROTECTION OF THE ENVIRONMENT IN TIMES OF ARMED CONFLICT

1. General principles of law and international customary law

2. International conventions

Main international treaties with rules on the protection of the environment in times of armed conflict:

Hague Convention (IV) respecting the Laws and Customs of War on Land, of 1907 (H.IV), and Regulations Respecting the Laws and Customs of War on Land (H.IV.R)

Hague Convention (VIII) relative to the Laying of Automatic Submarine Contact Mines, of 1907 (H. VIII)

Geneva Convention relative to the Protection of Civilian Persons in Time of War, of 1949 (GC.IV)

Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict, of 1954 (H.CP)

Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, of 1976 (ENMOD)

Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), of 1977 (G.P.I)

Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), of 1977 (G.P.II)

Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects, of 1980 (CW), with:

- Protocol on Prohibitions or Restrictions on the Use of Mines, Booby Traps and Other Devices (CW.P.II)

- Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (CW.P.III)

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Appendix B

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