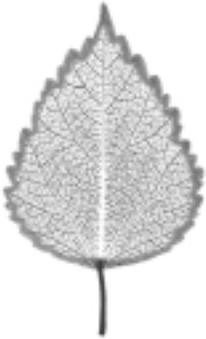
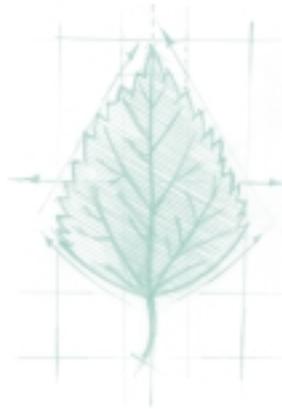
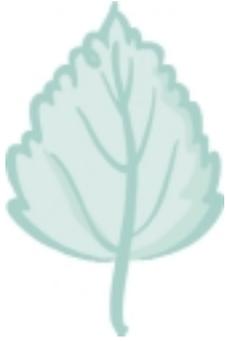




Innovation at the Environmental Protection Agency



A
Decade
Of
Progress





Contents

Executive Summary	1
Introduction	7
Cleaner, Cheaper, Smarter Programs.....	9
Partnerships for Results	19
A Stronger Public Role	29
The Challenges Ahead	35

Executive Summary



During the past decade, a new emphasis on innovation has changed the way U.S. Environmental Protection Agency (EPA) thinks and operates, leading to real environmental improvements and real reductions in costs. Regulatory programs are still the essential core of our environmental system, but innovation has provided new tools to meet future demands.

EPA has embraced innovation out of necessity. We have a strong legacy of environmental improvement, but important changes are taking place around us. Issues like global warming and loss of biological diversity present challenges potentially more difficult than any we've faced before. Our economy is shifting from an industrial base to one of service and knowledge, opening the door to a world of e-commerce, global trade, and new biotechnologies. States, local governments, and Native American tribes are expanding their capabilities. Some businesses are preventing pollution and doing more than the law requires, because they see advantages in cleaner facilities and products that are more environmentally sound. And the American people are demanding a stronger role in environmental decisions.

By the early 1990s, it was clear that we had to adapt, improve, and expand the diversity of our environmental strategies. Bolstered by the

Clinton-Gore Administration's commitment to reinvent government, EPA set out to find more flexible, cost-effective, and common sense ways to protect public health and the environment. Through innovation, EPA has made significant improvements that will benefit America today and in the years to come.

Cleaner, Cheaper, Smarter Programs

Because of EPA innovations during the past decade, environmental management is cleaner—with less pollution of the nation's air, water, and land. It is cheaper—with lower costs associated with environmental protection. It is smarter—using better means to solve existing and emerging environmental problems.

Improvements can be seen in regulatory programs where we've introduced more flexibility, reduced costs, and made it easier for businesses to understand and comply with requirements.

Cleanup of Superfund sites is now faster, fairer and less expensive. As a result of administrative reforms that began in 1995, the average time and costs associated with cleanup have fallen by more than 20 percent. Moreover, more than \$1.5 billion has been saved as a result of actions that make it possible to select and use the most efficient remedy for cleanup.

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Brownfields—sites that have been abandoned or neglected because of contamination problems—are being revitalized and returned to productive use. Cleanup and redevelopment is now underway at more than 300 sites. With seed money from EPA, communities have leveraged almost \$2 billion in public and private sector investments.

New clean air requirements are more flexible and less expensive, and they yield better environmental results. Market-based trading has been successful in controlling acid rain: between 1995 and 1999, national sulfur dioxide emissions fell by more than 4 million tons annually; rainfall in the eastern United States is now about 25 percent less acidic, and some New England ecosystems show signs of recovery. Trading has also successfully reduced emissions of nitrogen oxide,

the prime ingredient in smog formation: by 1999, states participating in the Ozone Transport Commission had cut nitrogen oxide emissions 20 percent below levels allowed by law and 50 percent below 1990 levels.

Water quality permitting, monitoring, and reporting are now integrated into broader strategies that focus on individual water-

sheds, a move that brings greater efficiency, more attention to local priorities, and better understanding of local conditions. Today, all 50 states, six territories and 80 tribal governments have completed comprehensive watershed assessments, creating the first coordinated overview of water quality priorities in the nation's history.

New compliance assistance programs and incentives complement strong environmental enforcement. During the past four years, 675 companies have identified potential environmental violations at more than 2,700 facilities—voluntarily—based on EPA's offer to reduce or eliminate penalties for facilities that routinely audit their operations, disclose results, and quickly correct problems. Environmental managers in different business sectors, local governments and federal agencies can now find information on environmental requirements and pollution prevention by going online to Web-based compliance assistance centers.

Partnerships for Better Results

EPA has broadened its impact and effectiveness by reaching out to work in partnership with public and private sectors. Today, more than ever, EPA recognizes that it must involve everyone—other government agencies, businesses, communities, and individuals—to meet environmental goals.

The National Environmental Performance Partnership System, established in 1995, gives states and EPA a more flexible process for setting priorities, clarifying responsibilities, and making the most effective use of taxpayer dollars. Thirty-five states have signed partnership agreements, and 45 states have opted to consolidate EPA grants. In 1997, we reached agreement with the states on how they can pursue innovations while maintaining the nationwide protection provided by federal environmental standards.



EPA and businesses are working better together based on a growing realization that environmental and economic performance can go hand-in-hand. Today, more than 7,000 organizations participate in one or more of EPA's voluntary partnership programs. Along with significant environmental benefits, annual savings for participants are estimated at \$3.3 billion. Some of America's most well-known corporations, along with smaller, innovative organizations, are using the flexibility in Project XL to test alternatives to the current regulatory system. Today, 20 projects are underway and 30 more are being developed, all of which have potential for more efficient and effective environmental management. Based on these and other partnership experiences, industry representatives are now working with EPA on a new Performance Track to encourage, recognize, and reward environmental stewardship.

EPA is providing leadership to help communities grow and prosper in ways that preserve environmental quality. Through involvement in the national Smart Growth Network and other initiatives, we provide technical tools and information that allow communities to understand the environmental consequences of growth. This is critical assistance at a time when the nation's forests, crop lands, and other open spaces are being lost to development at an alarming rate.

We are working more effectively with other federal agencies, pooling our resources, and making best use of our respective strengths to address a number of national priorities, including protecting children's health. Through a

combined strategy of research, public education, and regulatory action, we have made significant strides in reducing risks for one of society's most vulnerable populations.

A Stronger Public Role

Well-informed citizens who are actively involved in environmental decisions are a powerful new force in achieving environmental results. Increasingly, Americans are getting involved in environmental issues and it's clear that they want a say in decisions that affect them. But to participate effectively, they need quality information that they can understand and use. They need access to decision-makers and opportunities to express their views.

Today, EPA is using new technology to improve the quality of environmental information and make it easier to obtain. We also routinely involve the public in our work—gathering data, developing new regulations and standards, and experimenting with new ideas.

To meet Clean Air Act deadlines for developing control standards for 174 categories of toxic air pollution sources, EPA turned to the industries to be regulated and other interested parties to gather data and consider appropriate action. This move reduced the time and costs of developing the standards, laying the groundwork for faster, smoother implementation.





The Common Sense Initiative was one of our broadest and most ambitious experiments in public participation. Representatives from industry, state and local government, and environmental groups came together to identify ways of making environmental protection more efficient and effective for all parties. The experiment resulted in regulatory changes, greater experience with public participation

processes, and in one industry—metal finishing—a model for environmental stewardship that goes far beyond what is required by law. Sector-based approaches are now being considered for other industrial sectors.

We believe that communities affected by environmental violations should have a say in how those violations are addressed. A 1998 policy emphasizes the importance of community ideas for supplemental environmental projects that could be included in the settlement of enforcement cases.

EPA supported the public's right to know about environmental conditions by significantly expanding the national Toxics Release

Inventory. Citizens now have more information about releases of toxic emissions in their communities, which provides incentives for facilities to drive their emissions down.

To provide citizens with more relevant information, EPA launched a national program to provide real-time environmental data. Today, citizens in 85 metropolitan areas can get current information on local environmental quality.

The Challenges Ahead

Over the past decade, EPA innovations have improved the quality of the environment and strengthened programs that protect human health. Yet the greatest benefits are likely to be seen in the future, for what we learned in the

last 10 years will be carried forward in our work. It will affect how we solve the problems still confronting us today, like smog and polluted runoff. And it will affect how we address new challenges as they emerge.

We see issues on the horizon that could affect environmental quality and public health in significant ways. The long-term effects of global climate change may cause significant economic and environmental disruption. Emerging markets and a global economy

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pose questions about how to meet growing consumer demands in a sustainable manner. We don't fully understand how certain chemicals disrupt reproduction and other basic biological functions. And we've just begun to consider the possible long-term impacts—and unintended side effects—of genetic engineering.

The future will undoubtedly raise other challenging issues, but we are now better prepared to respond. We know that a wide variety of environmental strategies—both regulatory and non-regulatory—are possible. The greatest challenge in the future will be to select among all the options available to design the most effective response to existing and emerging environmental problems.

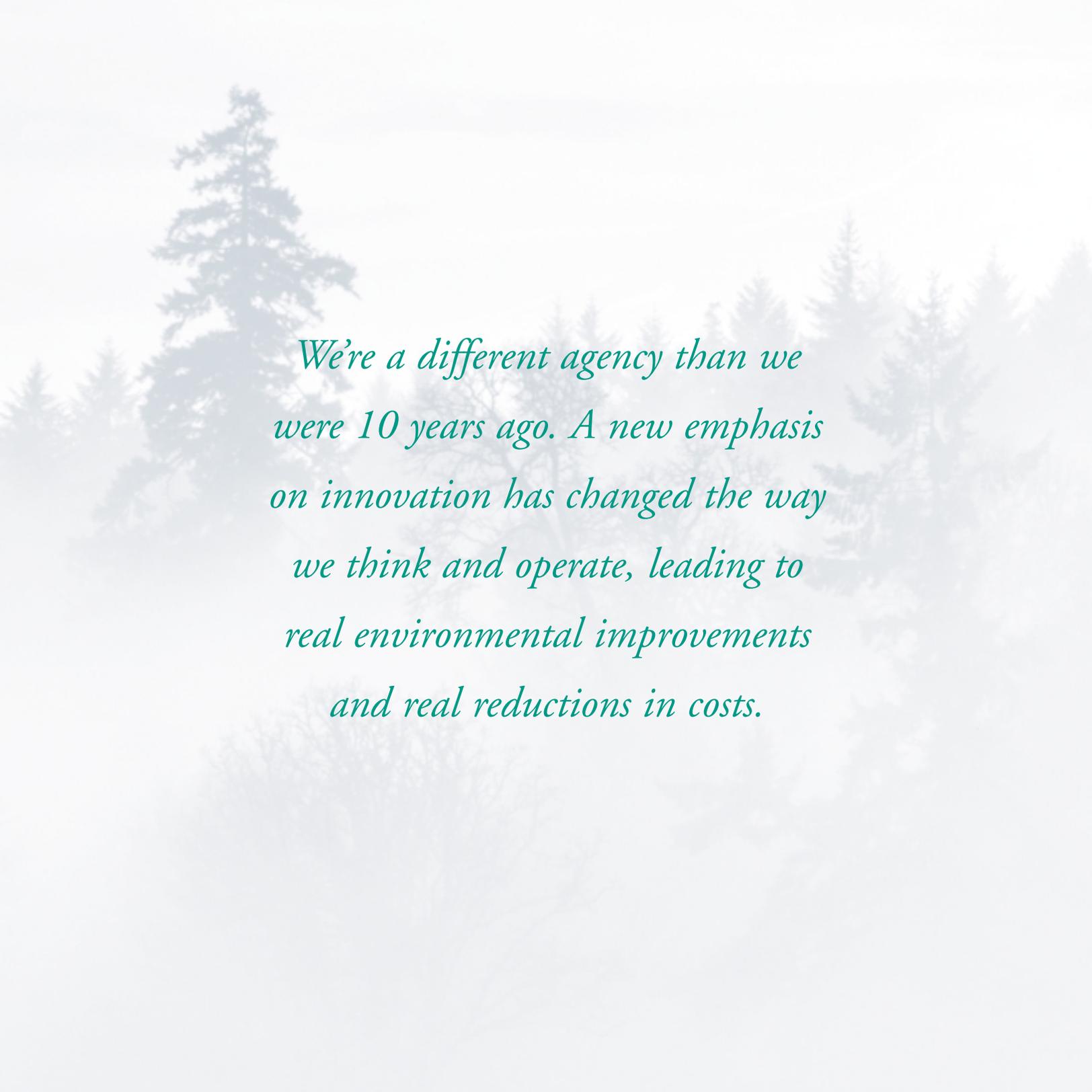


In some cases, nationwide laws and regulations will continue to be the best way to reduce risk. But in others, tailored strategies that involve market-based approaches, partnerships, or perform-

ance incentives may offer better results at lower costs. Moreover, the stakeholders who join in partnerships will vary, bringing different perspectives and resources, depending on the environmental problem in question.

Environmental solutions through new partnerships and new tools—that is our expectation for the future. And we will meet that expectation with a spirit of innovation that took root at EPA during the 1990s, tailoring our responses to environmental risks with unique

combinations of tools and partnerships that best attain the nation's environmental goals.



We're a different agency than we were 10 years ago. A new emphasis on innovation has changed the way we think and operate, leading to real environmental improvements and real reductions in costs.

Introduction



Times change, and so has the U.S. Environmental Protection Agency (EPA). Our overall goal is the same—clean air, clean water, clean land. But we're a different agency than we were 10 years ago. A new emphasis on innovation has changed the way we think and operate, leading to real environmental improvements and real reductions in costs. Regulatory programs are still the essential core of our environmental system, but innovation has provided new tools to meet future demands.

EPA has embraced innovation out of necessity. Like any other organization, we needed to evolve in response to changes around us. Many of our programs have led to remarkable environmental accomplishments, such as the removal of lead from paint and gasoline, the rescue of bald eagles from the threat of extinction, and a ban on cancer-causing PCBs (polychlorinated biphenyls). But despite many accomplishments, more kids were getting asthma, too many rivers and streams were still not safe for swimming or fishing, and hundreds of toxic chemicals persisted in the environment, accumulating over time.

We also saw changes in the nature of the challenges we face—challenges like global warming and loss of biological diversity. And developments like the shift to a service economy, the emergence of e-commerce, and the appearance of new biotechnologies presented challenges

potentially more difficult than any we'd seen before.

At the same time, many players were taking on new roles in environmental management. State, local, and Native American governments were becoming more active environmental leaders. Some businesses began to prevent pollution and do more than the law requires, because they saw advantages in cleaner facilities and products that were more environmentally sound. And the American people began to demand a say in local environmental decisions.

By the early 1990s, it was clear that we had to adapt, improve, and expand the diversity of our environmental strategies. We recognized the need and the opportunity to change the status quo. Reinforced by the Clinton-Gore Administration's commitment to reinventing government, EPA set out to find more flexible, cost-effective, and common sense ways to protect public health and the environment. We took a hard look at our mission and our responsibilities, and as this report shows, a great deal has changed because of it. Innovation at EPA has led to significant improvements in the way we go about our work, and just as important, it has set the stage for further improvement in the years ahead.





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Cleaner, Cheaper, Smarter Programs



EPA's most important responsibility is to protect public health and the natural environment. Traditionally, we have done this primarily through regulation and enforcement. These approaches have produced significant environmental improvement throughout the United States. But there were complaints about the costs of environmental requirements, lengthy procedures, too much paperwork, and overlap and redundancy across different levels of government. There was frequent litigation, and little incentive for companies to pursue environmental improvement beyond that required by law. It was clear we needed to change.

We have. In the past decade, we've made numerous improvements—streamlining regulatory procedures, increasing flexibility, and providing assistance in meeting environmental responsibilities. Today, EPA programs operate more efficiently and effectively, with cleaner, cheaper, smarter results.

Contaminated Site Cleanup

Because of innovation, contaminated sites are being cleaned up more quickly and at less cost. In many communities, this allows redevelopment of land that was once unusable, strength-

ening the link between environmental quality and economic growth. Two examples of innovation in traditional cleanup are the streamlining of Superfund and creation of the Brownfields Economic Redevelopment Initiative.

Reforming Superfund

Superfund is the federal government's program to clean up the nation's hazardous waste sites. For more than 15 years, EPA has identified and analyzed tens of thousands of sites, protecting people and the environment from hazardous contamination. But from the beginning, this program has been a target for critics. Companies responsible for cleanup saw the process as too complex, too expensive, and unfair in assigning cleanup responsibility. State governments, nearby communities, and Native American tribes felt their concerns weren't adequately considered as cleanup decisions were made. Few people were satisfied with the way Superfund was working.

In 1993, we began to target some of Superfund's weaknesses, applying new strate-



gies to improve the program. Through innovation, we succeeded on many levels—increasing the pace of cleanups, reducing costs, and introducing new, more efficient cleanup technologies. We found ways to allocate responsibility for cleanup more fairly and we made it easier for stakeholders to participate in cleanup decisions.

Cleanup is now completed at more than half of the sites on the National Priorities List, and substantial work is underway at most of the others. Overall, the average time and costs associated with cleanup have fallen by 20 percent. These improvements are the result of innovations that streamline decision-making and improve efficiency.



For example, we developed new processes that make it possible to update cleanup decisions and use the most cost-effective remedies available. We created a national board of technical experts to re-evaluate potentially high-cost remedies at specific sites. If newer, less expensive technologies become available, and they can do the job as well, we now use them instead. We also re-evaluate selections further along

in the cleanup process if new scientific information, advances in technology, or other factors suggest a less expensive, but equally protective, remedy is available. Since 1995, we estimate that innovations in remedy selection have saved more than \$1.5 billion.

We've also used innovative approaches to allocate Superfund liability more fairly. Parties

who sent waste to a site are responsible for cleanup, but sometimes we can't identify certain parties, or they've gone out of business. The law allows EPA to divide the "orphan" share of cleanup costs among identifiable parties, and in the 1980s, that was what we usually did. Now, to spread the cost of cleanup more fairly, at every eligible site we share the cost of the "orphan" share with responsible parties. By the end of 1999, we had offered approximately \$175 million in compensation at 98 Superfund sites.

Another factor that slowed down Superfund cleanups, and often contributed to the sense of unfairness in the program, was the involvement of thousands of companies that had contributed small amounts of waste at Superfund sites. These small volume contributors were caught up in Superfund liability and third-party litigation, as other responsible parties tried to spread the cost as widely as possible. Recognizing the burden this created, we used our settlement authority to remove small contributors from Superfund litigation. Through 1999, we've completed more than 400 settlements with more than 21,000 small volume contributors nationwide.

Reusing Brownfields

The changes we made to Superfund make cleanups faster, fairer, and less expensive at the sites on the National Priorities List. But there may be as many as 600,000 other contaminated sites—in urban, suburban, and rural areas alike—that do not warrant Superfund attention. These are less contaminated sites, but they

clearly pose problems. They're often neglected and decaying, sometimes abandoned, and they can pose health risks to surrounding communities. Fearing potential Superfund liability, real estate developers and other businesses have traditionally avoided them—building new developments and creating new jobs in suburban or “greenfield” areas instead. As a result, during the 1980s these so-called “brownfield” sites were unused, undeveloped, and left behind.

Brownfields are a striking example of the links between environmental quality, economic growth, and community livability. These are goals that can't be achieved through site cleanup alone, and they can't be achieved solely by EPA, state governments, and the parties responsible for cleanup. The problems surrounding brownfields demand community-driven, bottom-up solutions that involve all stakeholders, where environmental cleanup is just one piece of broader community revitalization.

In the early 1990s, EPA launched the Brownfields Economic Redevelopment Initiative, which paves the way for redevelopment by forging cooperative agreements for brownfield assessment and cleanup, clarifying liability and other cleanup issues, creating partnerships among the public and private sectors, and creating local workforce development and job training opportunities.

Since 1995, we've funded 307 Brownfields Assessment Demonstration Projects. This money helps pay for the environmental assessment and planning that allows communities to

Environmental Cleanup Linked to Economic Growth

The value of EPA's brownfields initiative can be seen in communities across the country. The city of Dallas, Texas, for example, used its EPA assessment grant to leverage more than \$53 million in public and private funds to redevelop six sites and reclaim more than 1,200 acres of brownfields. Residents now benefit from a new city recreation facility, a housing and shopping complex, an environmental training and technology center, and hundreds of new jobs associated with development on land that previously was considered unusable.

EPA's brownfields grant in Buffalo, New York, enabled the development of a former steel mill site that had been avoided for more than a decade because of contamination and liability problems. Once the city and the site's former owners provided \$800,000 to remove oil-soaked soil, a local bank funded construction of a new, \$16 million, 763,000-square-foot greenhouse and 42,000-square-foot tomato-packing plant. More than 175 new jobs were created at the facility, which now produces 120,000 pounds of hydroponic tomatoes per day.

attract other investments, often from the private sector, for cleanup, revitalization, and economic growth. With this start, communities have attracted almost \$2 billion more in public and private investment for brownfield development.

Our job training pilot program prepares people living around brownfields for employment, while also ensuring that there are enough well-trained workers for cleanup and redevelopment to proceed. Public and private institutions can receive grants for workforce training related to the assessment, cleanup, and redevelopment of brownfields. To date, we've provided \$4.1 mil-



lion in grants to 21 communities to train community members for jobs related to brownfield cleanup. Community revitalization requires community involvement, so EPA holds community-wide discussions about how brownfield sites should be used, and about related issues like how much risk the community can accept and which cleanup methods they prefer. These community discussions help generate the local support that is needed from beginning to end.

We have also tackled one of the biggest obstacles to cleanup and redevelopment—fear about potential liability. Now, we enter into administrative agreements with prospective purchasers of contaminated properties. This assures purchasers that they won't be responsible for the costs of cleaning up contamination that was on the site when they bought it.

One of the most exciting things about the brownfields initiative is that its success is generating more interest in this type of economic redevelopment. Along with our federal, state, and local partners, we are demonstrating that environmental protection can promote economic and social growth in a way that puts the community's needs first. Local contractors and developers are expanding their businesses, cleaning up sites, and building new facilities; local lenders are financing community redevelop-

ment; and local people are getting training and jobs. Most important, human health risks are being reduced and hundreds of neglected neighborhoods are becoming livable again.

Air Quality Protection

After 30 years and two major revisions of the Clean Air Act, strong regulations still form the core of national air pollution control. But today, we're placing new emphasis on economic efficiency, flexible operating procedures, and industry consultations, providing incentives for regulated companies to be more willing, active, and accountable partners in protecting the quality of our air.

Expanding Emissions Trading

An excellent example of this new emphasis is the expanded use of market-based emissions

trading, averaging, and banking in EPA's air programs. They are helping to control major air pollution problems like stratospheric ozone depletion, and the nitrogen oxide (NO_x) emissions that contribute to smog in the East. And they are also helping to achieve national goals for cleaner fuels. Today, market-based approaches are built into virtually all of our rules for motor vehicles and engines. For example, a recent rule sets tighter standards for tailpipe emissions and requires cleaner fuels for cars and



light trucks, but offers flexibility to vehicle manufacturers and gasoline refiners. Consistently, we find that market-based programs are leading to better environmental results at lower costs.

The most well known air pollution trading program is the one required by the Clean Air Act to control sulfur dioxide emissions—the emissions that help create acid rain. Between 1995 and 1999, national emissions of sulfur dioxide fell by more than 4 million tons annually, largely through emissions reductions at coal-burning power plants. Rainfall in the eastern United States is now about 25 percent less acidic, and some ecosystems in New England are showing signs of recovery.

While the 1990 Clean Air Act incorporated innovative programs like sulfur dioxide trading, EPA has developed innovative approaches that make it more efficient to conduct. We worked with the Chicago Board of Trade to establish the nation's first market for trading pollution allowances, and we now use electronic reporting to facilitate transactions between buyers and sellers.

States have primary responsibility for implementing national air quality standards, and EPA provides them with guidance and assistance in establishing trading and other market-based incentive programs. For example, based on the success of the acid rain trading program, we worked with northeastern states through the Ozone Transport Commission to develop a trading program for NO_x emis-

sions—the primary ingredient in smog formation. In 1999, this program reduced NO_x emissions 20 percent below what the law requires and 50 percent below 1990 levels.

Involving Stakeholders for Better Results

When developing regulations, EPA now routinely involves the people and organizations who will be affected. We consult with them earlier in the process, and in more meaningful ways. In recent years, state and local air agencies, industry, and community organizations have participated in developing the regulations related to acid rain, air toxics, and emissions controls on heavy-duty trucks and buses.

The National Low Emissions Vehicle Program is a good example of what can be achieved through consensus when there are incentives for agreement. This program was created in 1997 when EPA mediated an agreement among the

Lower Costs Through Free Market Trading

Because of strong partnerships with industry and the use of a flexible, market-based strategy, the phaseout of ozone-depleting chemicals was much less expensive than once predicted. In 1988, EPA estimated that a 50 percent reduction in chlorofluorocarbons by 1998 would cost \$3.55 per kilogram. Five years later, a faster, 100 percent phase-out using market forces was estimated to be significantly less—only \$2.45 per kilogram.

Market forces are having the same effect on the costs of controlling acid rain. Now, annual costs of the acid rain trading program are 75 percent lower than those initially predicted by industry. Trading has allowed the utility industry to minimize compliance costs, and it has spurred competition in other sectors of the economy such as freight hauling, coal, and cleanup technology—all of which contribute to lower costs.

states, U.S. automobile manufacturers, and other stakeholders that calls for cars and other vehicles to be 50 percent cleaner than 1999 models. Automakers voluntarily agreed to meet the tighter standards because it helps them avoid a patchwork of different state emission requirements. It also benefits the public by delivering cleaner cars five years sooner than EPA could otherwise have required. These cleaner vehicles will be available nationwide in model year 2001.



Overhauling Emissions Standards

Another innovation that is saving money while improving environmental quality is our recent overhaul of the traditional process for evaluating whether new cars and light-duty trucks meet emissions standards. We streamlined traditional emissions testing, and required automakers to verify performance once the cars were sold and on the road. The revised rules will save the industry an estimated \$55 million annually, reduce paperwork by as much as 50 percent, and save valuable time. In exchange, the industry will conduct more extensive emissions testing of vehicles in use. Because of these new approaches, we've made it cheaper and easier for companies to comply while also ensuring that vehicles meet public health and environmental standards under real-world driving conditions.

Water Quality Protection

Today, America's water resources—our rivers and streams, lakes, and coastal waters—are being stressed by pollutants and sources different from those common 20 or 30 years ago. In the 1970s, poor water quality was linked to large pollutant sources like sewage treatment plants and industrial facilities. Much of the water pollution today is linked to millions of smaller sources. Silt, sewage, disease-causing bacteria, excess nutrients, toxic metals, oil, and grease are entering waterways in runoff from agricultural lands, residential areas, and city streets; they are even settling into the water out of the air. To a large extent, today's pollution is a byproduct of the way people live, work, recreate, and commute.

Moving From “End-of-Pipe” Controls to Tailored Watershed Strategies

Our approach to solving water quality problems has changed dramatically. Starting in the early 1990s, we began modifying our nationally uniform, pollutant-by-pollutant control strategy to focus not just on water quality, but on the overall health of watersheds. Just like the pollutants we are targeting, the protective actions we now take differ from place to place. And when we design them, we consult with the people most directly affected—the people living within the watershed. This more holistic approach promises greater environmental benefits at less cost, with more community involvement.

EPA, state, and tribal officials are working to improve data systems so that management decisions in individual watersheds will be better informed. We have redesigned our national water quality database, STORET, making it easier for government agencies and volunteer groups to enter data about watershed conditions. Through our Internet-based Watershed Information Network, we have provided a road map for citizens and others to find information about watersheds and the resources available for protecting them.

We are also working with the states to put new and improved information to use. Today, all 50 states, six territories, and 80 tribes have completed comprehensive watershed assessments—the first coordinated statement of water quality priorities in U.S. history. States are also consolidating information from water quality, drinking water protection, agricultural, and natural resource protection programs to determine which areas need action. Many states are completing watershed action strategies, which will serve as comprehensive plans to restore watersheds and better integrate and manage federal and state programs.

EPA's watershed approach can also be seen in our traditional regulatory activities. We now coordinate permitting, monitoring, and enforcement requirements for municipal and industrial facilities within a specific watershed. The drinking water program helps communities take watershed approaches to protect both underground and surface sources of

drinking water. The wetlands program works with other federal agencies to preserve and protect wetlands on a watershed basis rather than relying solely on a regulatory, permit-by-permit approach.

To successfully protect watersheds, adequate funding is essential. Since 1989, the State Revolving Fund has loaned more than \$830 million for the construction of sewage treat-

New Tools Show How Land Use Affects Water Quality

New scientific tools make it possible to more clearly understand the link between human activities and water quality in watersheds. For example, in the mid-Atlantic region, newly-available satellite imagery allowed EPA to see the region's landscape to a degree of resolution never achieved before. Working with the Tennessee Valley Authority, the Oak Ridge National Laboratory, and other partners in state government and academia, EPA used this imagery along with statistical sampling data to create a land use atlas and report on conditions there. These tools help users visualize and understand how environmental conditions in the region's 125 watersheds compare. EPA is now working on similar assessments for other parts of the country.

ment plants and other water quality activities. But along with more traditional projects, many watershed partnerships have taken advantage of recently expanded funding opportunities to address other priority needs, including wetlands restoration and polluted runoff controls.

Through watershed approaches, we are saving money for communities and the government, by leveraging the financial resources and coop-



eration of the people living in the watershed. We are saving money for the private sector by using strategies—like pollution trading, wetland mitigation banks, and streamlined review procedures—that make development

permitted more predictable and less complicated. Our innovative watershed program is enhancing local and regional economies in ways that are environmentally sound and consistent with community values and goals.

Compliance Assistance

Much of America's environmental progress over the past 30 years is the direct result of EPA's vigorous enforcement of strong environmental laws. Though enforcement has worked, we want to encourage industries and facilities to comply with the law voluntarily. To do this, we are making greater use of compliance assistance and incentives, and developing policies to help small businesses and small communities, in particular, meet their environmental responsibilities. And we are targeting our efforts to focus on the highest environmental risks and the industry sectors that need help the most.

Providing Help in Understanding Requirements

To help industries comply, we've partnered with industry associations, environmental organizations, universities, and other government agencies, to launch 10 compliance assistance centers, all accessible through Internet sites. Some also offer toll-free hotlines. Each center serves a specific audience by explaining, in plain language, the federal environmental regulations that apply to them. Eight of the 10 centers serve sectors that include many small businesses. The ninth center serves local governments, and the 10th serves federal agencies.

Each center provides a range of information services: compliance guidelines, pollution prevention information, summaries of EPA regulations and policies, access to e-mail discussion groups, vendor directories, links to other assistance providers, and environmental management software that can be downloaded from the Internet. Some also provide online access to relevant state regulations. Responses to recent surveys show these compliance assistance centers get results. Of the users who responded:

- 85 percent rated the assistance as either very useful or useful;
- 70 percent took positive action (e.g., improved waste handling, changed a production process, obtained a permit); and
- 58 percent made environmental improvements (e.g., reduced air emissions, conserved water).

We have created other tools to help businesses comply with environmental laws on an industry-by-industry basis. Sector notebooks—written for specific industries—provide owners and operators of regulated facilities with plain English guides for understanding their regulatory obligations. This kind of information is not only useful to businesses, it also helps regulators, educators, consultants and other organizations understand and assist industry with environmental management issues.

Encouraging Self-Audits

Another way we are helping companies comply is through an audit policy that encourages them to complete their own environmental evaluations. The idea is to have companies find and fix problems on their own. If they do, we will waive or reduce potential enforcement penalties, as long as the company was not involved in criminal behavior. During the past four years, 675 companies have come forward to disclose potential violations at more than 2,700 facilities.

Providing Special Help to Those Who Need It Most

One other recent change in our compliance program is that our work is more targeted. Today, we are identifying specific industry sectors as priorities for special compliance assistance. For example, in 1996, EPA's regional

Compliance Assistance Centers Serve Specific Sectors

Compliance assistance can be found at the following sites on the Internet. They can also be accessed through <www.assistancecenters.net>.

CCAR-Greenlink® (for Auto Service & Repair)	www.ccar-greenlink.org
National Agriculture Compliance Assistance Center	www.epa.gov/oeca/ag
ChemAlliance (for Chemical Manufacturers)	www.chemalliance.org
National Metal Finishing Resource Center	www.nmfrc.org
Printers' National Environmental Assistance Center	www.pneac.org
Printed Wiring Board Resource Center	www.pwbrc.org
Paints and Coatings Resource Center	www.paintcenter.org
Transportation Environmental Resource Center	www.transource.org
Local Government Environmental Assistance Network	www.lgean.org
FedSite (for Federal Agencies)	www.epa.gov/oeca/fedfac/cfa

office in Atlanta targeted electroplating companies and dry cleaners in Georgia and Florida to help them meet new national emissions standards for hazardous air pollutants. The rate of compliance improved dramatically. Georgia recently reported an 81 percent compliance rate

Self-Policing Pays Off

Companies that take advantage of EPA's audit policy may find it pays off in a big way. That's been the case in the telecommunications industry. In 1997, GTE used this policy to resolve spill prevention and right-to-know violations at 314 facilities in 21 states. They paid a \$52,000 penalty, the amount they saved while noncompliant. But in light of their outstanding cooperation in resolving this matter, EPA waived nearly \$2.4 million in potential penalties. Last year, 10 more telecommunications companies followed GTE's lead. They found and promptly corrected 1,300 violations at more than 400 sites. They were fined approximately \$129,000, but may see waivers totaling more than \$4.2 million.

for chrome electroplaters, and Florida reported that 64 percent of targeted dry cleaners entered the regulatory system as a result of this compliance assistance.

Similarly, in 1997, Virginia, Maryland, the District of Columbia, and the Korean Dry

Cleaners Association of Greater Washington formed a partnership to reduce emissions of perchloroethylene from area dry cleaners. The partners set up a mentoring program in which experienced dry cleaners, trained by EPA and state environmental offices, help less knowledgeable dry cleaners better understand—and comply with—environmental requirements. The compliance rate of participants is estimated to be 20 percent higher than other dry cleaners in the area.

Our new compliance assistance techniques are enhancing the Agency's traditional enforcement and compliance programs. Today, we can rely on more companies to comply because they are learning what they have to do and how to do it. And better compliance means better environmental results—the ultimate goal of environmental law.

Partnerships for Results



Over the past decade, it's become clear that action by EPA alone won't yield the environmental quality that Americans expect. To meet national environmental goals, we need action by all levels of government, businesses, communities, and individuals alike. In many cases, the most effective way to get results is to work together in cooperative partnerships.

Strong partnerships are vital to long-term environmental protection for both economic and environmental reasons. Partnerships allow government agencies to leverage limited resources with each other and with the private sector. They help eliminate overlap among different levels of government, making their actions more efficient and less complicated. Partnerships with businesses can identify ways to prevent pollution and save money at the same time. And partnerships at the local level can create better solutions to local problems.

Partnerships With State Governments

Because EPA and state governments share responsibility for protecting human health and the environment, a strong partnership between us is essential. In recent years, states have

become stronger environmental managers, and a new relationship with the states is emerging—one that allows us to adapt to changing priorities and to experiment with new ideas. We each have unique roles to play, but by cooperating and collaborating we are getting better results at less cost.



Today, the states and EPA are working hard to make this new partnership succeed. Separate programs for air quality, water quality, and waste management still pose some obstacles that we need to overcome for the new system to work well. But we are moving forward

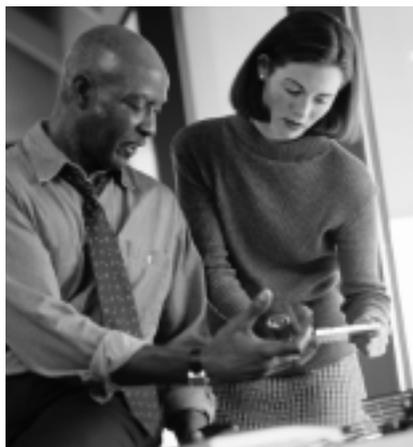
and finding ways to address environmental problems in more holistic, comprehensive ways. Together, we are making tough choices about competing priorities in the face of limited public resources, and we are developing more meaningful measures of environmental results.

Creating Better Working Relationships

Because we are committed to improving environmental programs, in 1995, the states and EPA created the National Environmental Performance Partnership System. Through this framework for collaboration, we jointly set priorities and clarify our roles and responsibilities. In doing so, we are creating working relationships that are more flexible and resilient.

*To meet national
environmental goals,
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The centerpiece of the new system is a Performance Partnership Agreement, which sets expectations for performance yet offers flexibility in meeting goals. This agree-



ment is an innovative way to identify priorities, solve problems, and make the most effective use of our collective resources. It emphasizes performance rather than process and environmental results rather than administrative details. It gives a state greater freedom to focus resources on its highest environmental priorities and to select the best strategies for getting results. Prior to developing an agreement, a participat-

ing state assesses its environmental problems and conditions, while actively involving citizens in the process. Based on this information, the state then proposes environmental and public health objectives along with a plan of action. This forms the basis for negotiating an annual agreement with EPA. To date, 35 states have established agreements with the Agency.

Another feature of the new partnership system is flexibility in administering grants. States now can consolidate a variety of individual grants into one. A Performance Partnership Grant reduces administrative burdens by cutting paperwork and simplifying financial management. It also allows the states more flexibility to use grant money to address their most pressing environmental problems. Forty-five states have chosen this option.

The National Environmental Performance Partnership System has led to some important developments:

- Maryland has seen its administrative reporting requirements cut in 13 areas, and the goals and objectives we jointly identified serve as the environmental component in the state's strategic plan.
- Florida's emphasis on showing results led the state to develop a new performance measurement and tracking system that received an "Innovations in Government" award from the Ford Foundation and Harvard's Kennedy School of Government.
- Mississippi's interest in targeting resources to solve priority problems resulted in a reorganization around specific functions, business sectors, and geographic areas.
- Minnesota shifted staff and resources from the main state office closer to where the real problems occur—out in the districts.
- Washington saw the paperwork associated with its annual work plan for grants fall by an order of magnitude—from about 40 to four pages.

Improving the System

Strengthening our working relationships set the stage for another important development between the states and EPA—consensus about how to test new ideas that would still work hand-in-hand with federal laws. Based on the states' growing interest in improving environ-

mental management, we negotiated an agreement that expresses our joint interest in innovation and specifies how it should occur. It encourages states to use the flexibility available in existing regulations—allowing new ideas to be tested while assuring consistent levels of environmental and public health protection nationwide.

Our relationship with states is evolving, leading us to work in a more collaborative, coordinated manner. Together, we are applying innovative approaches to traditional environmental problems, and we have begun to see results. More importantly, we have set the stage for greater cooperation and progress in the years ahead. We are only just beginning to realize the benefits of our new working relationship, and the spirit of innovation now reflected in so much of our work.

Partnerships With Businesses

An improved relationship with industry is one of the most telling indicators of change at EPA over the past decade. Today, our partnerships with businesses often lead to lower costs, less paperwork, and better environmental results. Working together, we find that strong business performance and strong environmental performance often go hand in hand.

In our early years, good corporate citizens were given little incentive to do more than the law required or to invest in new, more environmentally sound technologies. As a result, through the 1970s and 1980s, the entrepreneurial spirit

and technical know-how of private industry was not fully applied to environmental improvements. Today, EPA and businesses are working together and finding new ways to meet environ-

Pollution Prevention in Developing New Chemicals

Thousands of American companies are lowering production costs and improving environmental performance by redesigning product development and manufacturing processes to minimize pollution. Eastman Kodak made a corporate commitment to reduce all waste and emissions, and it's paying off. The company worked with EPA to evaluate a new method of predicting the potential environmental effects of chemicals under development. Based on the results, Eastman Kodak reformulated five chemicals, improving their environmental performance significantly, and saving thousands of dollars in development costs. The new procedure also lowered the costs of toxicity testing, reduced product development time, decreased regulatory uncertainty, and helped move the chemicals more quickly to market.

mental and economic goals simultaneously. We are using more negotiation and consultation to reduce litigation, and everyone is benefitting from the change.

Testing New Ideas Through Project XL

A good example of the short-term results—and long-term promise—of our partnership with business can be seen in Project XL. Launched in 1995, this innovative program tests ideas that could make the nation's environmental protection system more efficient and effective.

Through Project XL we offer participants reduced administrative burdens or increased regulatory flexibility if they take steps to do more than just comply with regulations—achieving results that go beyond what the law requires. Depending on the outcome, we decide whether these innovations can be more broadly applied to other facilities. This willingness to experiment outside the regulatory arena signifies our emphasis on getting results, not simply enforcing regulatory processes.

Not surprisingly, the novel approaches emerging from Project XL present EPA with issues that we've never faced before. We had to create new ways to allow companies to experiment, but still hold them accountable for performance and results. We had to make sure that no one was at risk, and we involved communities and other stakeholders at all stages of the process. We also had to ensure that prospective environmental improvements were realistic and attainable.

Despite these challenges, Project XL is living up to its potential. Leading companies have joined smaller businesses, state agencies, and federal facilities in experimenting with new ideas that

Flexible Permit Cuts Costs and Reduces Environmental Impacts

At its pulp mill in Oglethorpe, Georgia, Weyerhaeuser is testing an alternative facility-wide permit that reduces air pollution, water pollution, and solid waste. Their goal is to become a Minimum Impact Mill. In exchange, the company receives flexibility to consolidate reports, use alternative means to meet new clean air requirements, and make certain process changes without further government approval.

First year results show a 40 percent decrease in solid waste, a 32 percent decrease in certain wastewater discharges from the bleach plant, and a 13 percent decrease in air emissions. Weyerhaeuser saved \$176,000 last year in report consolidation alone, and they expect further savings of up to \$29 million over the life of the project. As they continue driving emissions and pollutants down, they will also reduce hazardous waste, use more protective forest management practices, and cut water use by one million gallons per day.

simplify and improve the current regulatory system. They are also moving beyond simply complying—getting environmental results that are better than those of the past. Today, 20 XL projects are underway to test new approaches to managing wastes, reducing air pollution, and protecting water quality. More than 30 other projects are being developed or negotiated. We believe all of these projects show promise for broader application in the future.

Participants in Project XL point to numerous benefits. Besides the obvious environmental improvements, businesses have streamlined administrative processes, improved their relationships with stakeholders and regulators, and

made better use of their employees' environmental expertise. Perhaps most important from the business perspective, having more operational flexibility has allowed them to cut costs and avoid regulatory delays—results that improve profits and competitiveness.

But Project XL is not intended to simply benefit a relative handful of participating companies. On the contrary, the real value of this program is that it tests improvements that could benefit everyone—companies and communities alike. Our goal is to apply the lessons we learn from these projects as widely as possible, and then integrate them into common EPA practice. Superior environmental performance, meaningful stakeholder involvement, regulatory flexibility, and transferability are innovations that have been brought to the forefront by XL. Our challenge ahead is to make these innovative ideas a permanent part of EPA's culture.

Creating Partnerships That Protect the Environment and Save Money

EPA and businesses are realizing that strong environmental and economic performance are not mutually exclusive. Throughout the private sector, companies are preventing pollution, conserving water and energy, and cutting waste because doing so cuts operating costs and increases profits. They also see environmental performance becoming a major consideration for many of their customers. So they are demonstrating environmental stewardship and making improvements that go beyond what regulations require.

In support of greater stewardship, we have created voluntary partnership programs that help companies make environmental improvements and improve overall efficiency. Sometimes these programs target pollutant emissions that are not currently regulated, like greenhouse gases; sometimes they target business sectors that aren't regulated; and sometimes they emerge simply because EPA and the involved parties recognize an opportunity for mutual gain. In all, EPA has more than 20 national, voluntary partnership programs, and many EPA regions have their own programs based on regional priorities.

One example is Waste Wise, a national program that helps companies reduce solid waste and material use. Today, more than 900 organizations from more than 50 business sectors have enrolled in Waste Wise. Among them is Herman Miller, the world's largest manufacturer of office furniture. After becoming a Waste Wise partner, Herman Miller reduced its use of packaging material for finished goods by 50 percent, and eliminated 500,000 pounds of wood pallets and close to 1 million pounds of corrugated boxes. As a result, the company now is saving \$4 million per year.

Other voluntary programs focus on making changes that can improve environmental performance across an entire business sector. The printed wiring board industry, for example,



joined EPA's Design for the Environment (DfE) Program to find ways their members could operate in a more efficient, environmentally sound manner. In particular, they were interest-

More Choice in Environmental Technology

An EPA partnership with other public and private sector organizations focuses on new environmental technology. Each year, many companies and government agencies face investment decisions related to environmental technology. To simplify their decision-making and encourage new technology development, EPA created a program to verify performance and reassure purchasers about their choices. This program verifies technologies for addressing a wide range of problems, such as controlling *Cryptosporidium* in drinking water, detecting leaks from natural gas pipelines, and measuring pollutant emissions into the air. Designed with active participation of more than 850 environmental technology customers, it is now the most comprehensive program of its type in the world.

ed in preventing pollution and reducing the toxic chemicals that are traditionally used in manufacturing their products. They have succeeded: the industry has cut its annual use of formaldehyde by 240,000 pounds. They've also reduced water use by 400 million gallons, and energy use by 15 billion BTUs.

More than 7,000 organizations now participate in EPA's voluntary partnership programs. The latest annual results show they can make a big difference. Collectively, in 1998, participants conserved 1.8 billion gallons of clean water, eliminated 7.8 million tons of solid waste, and prevented air pollution equivalent to taking 13

million cars off the road. They also saved an estimated \$3.3 billion.

Along with technical assistance and potential cost-savings, several voluntary partnership programs also offer public recognition for superior environmental achievement. The Energy Star program, which works to improve energy efficiency, gives participants the right to display a distinguishing logo if their product meets certain energy efficiency criteria. Recognition can help can drive the market to offer consumers more environmentally sound products: about 85 percent of all computers sold today feature the Energy Star logo.

Rewarding Businesses for Doing More

For the past three decades, we have focused intently on compliance. Companies have been expected to meet environmental standards, and they received penalties and legal action if they failed. But, in general, they've been offered little or nothing if they decided to do more. We see this as a missed opportunity for encouraging better environmental performance.

EPA is now developing a new program—the National Performance Track—to reward good environmental performance. As currently envisioned, this new program would provide rewards and recognition to top performing companies and incentives for others to improve. EPA sees this as an important step towards building a more performance-based system of environmental protection and a more positive working relationship with industry.

EPA's partnerships with businesses generate benefits for the environment and the economy, and we expect these partnerships to grow stronger in the future. Clearly, recognition and incentives are going to become more important drivers of environmental stewardship in the years ahead. We are committed to working with our private sector partners to develop their environmental management capabilities as fully as possible.

Partnerships With Local Communities

We're building partnerships with states and businesses, and we're also building partnerships with American communities—helping them address their local environmental issues more effectively. This collaboration is helping communities solve some of their most difficult environmental problems such as polluted runoff, brownfields, and urban sprawl, to name just a few. Our partnerships with communities are designed to find innovative ways of assuring environmental, economic, and social well-being so that citizens now and in the future can enjoy a higher quality of life.

Our typical role in these partnerships is to provide resources, information, and technical assistance in support of local decisions. We reinforce community initiatives to restore the local environment while strengthening the local economy in the process. These partnerships work because they respond to each community's unique characteristics and concerns.

Helping Communities Preserve Environmental Quality

One way we're supporting communities is through tools that help them make more informed development decisions. Development patterns—the physical location, density, and design of buildings; proximity to other commercial and residential areas; and transportation options—have a direct effect on public health and environmental quality. For example, the air quality in many communities today is threatened by development that makes people dependent on their cars.

Today, development is consuming valuable green space at an aggressive rate. Nearly 11 million acres of forest, crop land, and open space were converted to urban and other uses from 1992 to 1997, more than double the rate in the 1980s. Water runoff from roads and parking lots is one of the most important factors affecting the health of rivers, lakes, estuaries, and drinking water sources.

Recognizing the environmental problems caused by development, in the early 1990s, we decided to take innovative, non-regulatory action to help communities make more sustainable development decisions. Our assistance is profoundly changing the relationship between the federal government, state and



Growth Linked to Environmental Improvement

In northeast Ohio, population and economic growth coupled with sprawling development have placed unprecedented strains on regional ecosystems, utility systems, and transportation. EPA's regional office in Cleveland is working with communities in the area to help solve their air, water, and waste management problems in a way that respects community values and needs.

One such effort, the Toxic Sweep Task Force, is helping clean up brownfields, which in turn is spurring economic development in urban cores. Working through this group, the city and the state have emphasized local responsibility and local solutions, calling upon EPA only when federal involvement is needed. In six years of operation, they have cleaned up more than 100 properties. By supporting community-based efforts, EPA is able to use its resources more efficiently, and only when local resources alone can't do the job.

EPA's participation is helping to restore streambanks in the Cuyahoga River watershed, protect fragile ecosystems, update water quality management plans, and enhance community participation.

local governments, and the private sector. What has emerged is a collaborative, cooperative, and flexible model for solving development-related environmental problems at the local level.

Sharing Information for Smart Growth

Another way that we are putting our innovative ideas into action is through the Smart Growth Network. Established in 1997, this network includes architects, planners, government officials, developers, environmental groups, and citizen organizations. It has grown rapidly, now

including more than 700 individual members and 24 partner organizations.

Communities are looking to the Smart Growth Network for many types of development-related information, including examples of best development practices and transit-oriented design; access to the latest research on development, transportation, and air quality; and strategies for protecting open space while insuring the availability of affordable housing. EPA support goes to help fund a variety of services, including newsletters, case studies, and an Internet site that delivers information to more than 100,000 visitors per month.

Alone and in partnership with others, EPA is helping communities design new development policies that yield better environmental and economic results. One example is our work with the U.S. Department of Commerce, the U.S. Conference of Mayors, and the cities of Baltimore, Chicago, and Dallas to explore the impact of air quality regulations on brownfields and inner city development. Because such development can help improve regional transportation patterns and thus reduce vehicle-related air emissions, we are encouraging more communities to use this alternative to preserve green space, protect air quality, and boost economic growth in inner city neighborhoods.

Working With Lenders and Builders to Reduce Pollution

Location Efficient Mortgages are another example of an innovative program EPA has supported. These mortgages are a voluntary

market mechanism that communities can use to encourage development patterns that reduce air pollution associated with automobile use. EPA and the U.S. Departments of Energy and Transportation supported the initial research that showed households in populous areas with good access to mass transit and other services own fewer cars, drive less, and spend significantly less money on transportation. As a result of this research, EPA has supported the efforts of a consortium of non-profit organizations to work with lenders to develop a mortgage that allows people to use their transportation savings to qualify for more valuable housing.

Thanks to this research and a \$120 million mortgage underwriting experiment sponsored by Fannie Mae, the Location Efficient Mortgage is a reality today. Initially, the program will be available in four cities—Chicago, Seattle, the San Francisco Bay area, and Los Angeles—to test the concept under actual market conditions.

We also are working with the National Association of Home Builders Research Center to provide communities with technical information and direct assistance on innovative site preparation techniques such as construction and demolition waste recycling. These strategies offer traditional environmental benefits such as resource conservation and energy savings while also creating new local job opportunities.

Partnerships With Other Federal Agencies

Our emphasis on building partnerships also extends to our relationships with other federal agencies. Over the past decade, agencies like the U.S. Departments of Transportation, Energy, and Agriculture have become more environmentally conscious. Today, we are working with our federal partners in many areas to help advance environmental and public health protection capabilities.

One area where we are collaborating with other federal agencies is children's health. We are tailoring our own efforts, and combining them with the activities of several other federal agencies, to protect America's children from a multitude of risks.

In the past, EPA based its standards for protecting public health on risks to adults.

Scientists at the time assumed that all people were comparable in terms of their response to pollution exposure. As we've learned more about the effects of pollutants on human health, we've come to realize that children need special attention.

In May 1997, President Clinton signed an Executive Order requiring federal agencies to place a high priority on protecting children from environmental and safety risks. In



Cooperative Research Protects Children's Health

EPA's research agenda on children's health includes extensive coordination with other federal agencies on critical topics, such as:

- **Asthma.** EPA and the U.S. Department of Health and Human Services (HHS) have a comprehensive, cross-government strategy to study environmental factors that place a crucial role in childhood asthma.
- **Pesticides on Food.** EPA and HHS are working with the U.S. Department of Agriculture to design new surveys on infant and children eating habits to assess dietary risks from pesticides.
- **Childhood Cancer.** A multi-agency public health plan has been drawn up to study elevated rates of childhood leukemia and cancers in the Toms River and Dover township area of New Jersey, an area with two Superfund sites.

response we formed a new Office of Children's Health Protection that would carry out the Executive Order, integrate EPA efforts on behalf of children, and coordinate those efforts with other federal agencies.

Today, EPA is using virtually all the tools at our disposal to reduce risks for this especially vulnerable segment of the population: regulatory actions, public education, and an ambitious research strategy.

While government and other organizations can help protect children with national programs, parents and other local care givers have the daily, ongoing responsibility to reduce the environmental risks faced by children. By raising awareness and providing information and education resources, EPA and other federal agencies are helping parents, health-care providers, and others protect children from environmental risks in their homes, schools, day-care centers, and hospitals.

Our children's program is a dynamic example of how different federal agencies can integrate and coordinate their activities—regulatory and non-regulatory—to reduce environmental risks. A program like this would not have been possible 20 or 30 years ago, when cross-media and cross-agency action was virtually unheard of. In the future, it may provide a model for protecting all people.



A Stronger Public Role

There is little doubt that Americans are deeply committed to protecting our environment. Their concerns led to enactment of the federal laws that we now work so hard to administer. But in recent years, people across the country have begun to play an even more personal and active role in environmental protection. They have changed their individual and family behaviors in a number of ways by recycling, joining car-pools, or buying environmentally-preferable products. And they have demanded a voice in community decisions that affect their health and the quality of their environment.

Because Americans want to be actively involved in environmental decision-making, we are increasing public participation in our programs and providing more environmental information to help the public understand critical, and often complex, issues. As a result, the voice of the American people is more well-informed than ever before, and it is being heard more clearly and more often at every level of government where environmental decisions are made.



Greater Public Participation

Today the public influences what we do day-by-day far more directly, and far more effectively, than ever before. Public participation has become a routine part of how we do business.

Getting Stakeholder Input on Environmental Standards

One good example is the process we use for developing control technology standards for toxic pollutants under the Clean Air Act amendments. The law requires that we establish such standards for 174 categories of industrial facilities. To meet tight statutory deadlines, we developed an innovative process to get the public involved in gathering data and developing standards. We talked to state and local air quality agencies, industry, and local organizations

to get as much information as we could. By getting these groups involved at the beginning, we got more done than we could have alone. Our discussions reduced the costs of developing standards, and also improved our working relationship with the parties involved.

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Creating a Forum for Sharing Ideas and Concerns

The Common Sense Initiative was EPA's most ambitious forum for involving stakeholders in improving environmental management. In 1993, participants began work to develop

Consumers Help Improve Product Labels

Label information that's clear and direct will help consumers make wiser choices in choosing and using household products. Through the Consumer Labeling Initiative, we're working with industry and other groups to prevent pollution by promoting safe use and disposal of common household products. Key to success in this effort is advice we're getting from consumers themselves.

In 1996, we went directly to consumers to learn what they thought about existing labels on everyday products like roach killers and bathroom cleaners. They told us where the problems were and suggested solutions. Over the next two years, some of the product manufacturers expanded this research and got more customer input on how to make labels easier to understand.

Using what was learned, we're now working with companies to make information on labels simpler and easier to follow. If people can easily understand information on the labels, they can choose the right products for their needs, avoid accidents, and safely dispose of these products without damaging the environment.

“cleaner, cheaper, smarter” environmental protection strategies for specific industry sectors. The goal was to create a more tailored system of environmental protection that took into account the unique circumstances of different industry sectors, while also addressing the

needs of other parties that had a stake in these new strategies.

We selected six industries that represented a cross-section of American business. We invited their representatives, along with representatives from states, environmental and public interest groups, and the environmental justice community, to work together to find better ways to manage their environmental responsibilities. For the next four years, participants identified many ways to improve environmental management and regulation. Many of the recommendations they made resulted in specific regulatory changes, and several are still being considered for potential action.

Especially important, this experience demonstrated the value of public participation, leading us to look for better ways to involve the public in our activities. Now, we are revising the regulations that guide our public participation efforts, and providing models to help our staff learn how to get the public involved in their work. We also host forums like the National Community Involvement Conference to support public participation in environmental issues.

Improving Policy Through Public Involvement

Our increased commitment to public participation is evident in one of EPA's most innovative initiatives—Project XL, which tests alternatives to current regulations. Because the projects involve innovative strategies that differ from

what would be allowed under regulation, we made sure that the public had ample opportunity to review and influence actions first. In many cases, ideas spawned by the public have helped shape the project in significant ways.

Public concern about Intel's project, for example, led the company to become the first ever to place its environmental performance data on the Internet. It did so for its Chandler, Arizona, manufacturing facility after it proposed to test an alternative air quality permit there. The community was concerned about potential impacts on local air quality, and so in a massive outreach to local residents, the community was invited to get involved in project design. In most cases, community needs were easily met. By placing its environmental performance data online, Intel gives residents a way to monitor its performance and creates an incentive to continuously improve. In the end, Intel has the regulatory flexibility it needs, and as a side benefit, the company now enjoys stronger relations with the community.

Addressing Community Concerns in Settlement Decisions

We believe that communities affected by environmental violations should have a say in how those violations are addressed. Under a policy issued in 1998, we now emphasize the importance of asking the community for ideas on environmental projects that could be included in the settlement of enforcement cases. In Chicago, for example, a settlement required a major paint manufacturer to reduce emissions

Improved Data Collection Lowers Costs

The demand for high-quality environmental data is increasing rapidly, but the costs involved in collecting and managing data can be high. To reduce costs, save time, and improve data accuracy, EPA is developing a prototype system to allow data to be received and stored electronically for use by EPA, the states, and the public.

This new system will allow electronic reporting instead of paper reporting, saving companies and government agencies millions of dollars. It will also centralize and integrate EPA's largest environmental databases, making information more accessible and useful. We expect to begin operating this new system in the Spring of 2000.

of hundreds of tons of volatile organic compounds. Because of community input, the company also committed to clean up and restore a brownfields site and help restore an area of wetlands.

Greater Access to Better Information

Collecting and disseminating environmental information is an area where we've made major changes in the last decade. Like many other organizations, we have capitalized on the opportunities created by new information technologies and the public's growing ability to put information to use in their daily lives. This new capability brings new challenges, such as information security and protection of trade secrets. But we're working with stakeholders to create appropriate safeguards and still provide the public with high quality envi-

Environmental Information for Hispanic Americans

In order to improve access to the environmental information that Spanish-speaking people need to protect their health and environment, EPA has opened a “virtual” reading room of Spanish-language environmental publications and reports, “Sala de Lecturas en Español” (<http://www.epa.gov/espanol>) and released a Spanish-language version of our “Environmental Quality” Web site, “Calidad del Medio Ambiente” (<http://www.epa.gov/ceisweb1/sphome>). These resources provide more than 25 million Spanish-speaking Americans access to data and information on air and water quality, toxic releases, drinking water safety, and waste management in the states and counties where they live. People who do not have computers or access to the Internet from their home or offices can gain access to the Internet at their local library or any one of the 28 EPA libraries nationwide.

challenges of the 21st century cannot be solved by EPA alone. To successfully protect public health and the environment, we need everyone to play a part.

Using Information to Reduce Risk

Perhaps the most notable example of the power of environmental information is the Toxics Release Inventory (TRI). TRI has significantly altered the way businesses and communities

ronmental information.

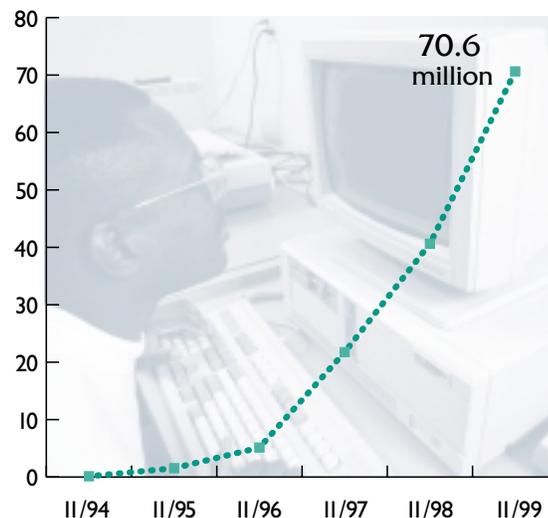
Today we are providing more access to more data than ever before, because we have seen the cause and effect relationship between environmental knowledge and environmental results. When people have access to accurate information that they can readily understand and use, they can make decisions and take actions to reduce environmental risk. Better information is especially important now, because the environmental

respond to environmental risks. Starting in 1987, certain facilities have been required to file annual reports on how much of certain chemicals they release into the air, water, and land. EPA then compiles those reports, creating a consistent, year-to-year history of chemical emissions that is useful in measuring and managing environmental risks.

During the past decade, EPA expanded TRI and improved its usability. Each year approximately 80,000 reports—listing billions of pounds of chemical wastes—are submitted to us by more than 20,000 facilities. These data serve many users, including businesses, local communities and their emergency planning committees, state and local environmental

A Dramatic Increase in Public Demand for Environmental Information

Hits on EPA's Web Site



agencies, trade associations, labor groups, and health care professionals. This information, which is now available on the Internet, is helping local communities learn about risk and plan for emergencies. It is also creating better communication and cooperation between facilities and the communities that surround them.

Most important, TRI is leading to real reductions in chemical releases, as companies strive to improve their environmental performance and their public relations. Between 1988 and 1997, national air releases declined by 55 percent, and water releases declined by 63 percent. Over the same period, 22 percent less waste was injected underground nationwide, while facilities disposed of 26 percent less waste on-site, and increased off-site disposal by just one percent. The numbers of facilities and kinds of chemicals subject to TRI have changed over time, but there can be little doubt that nationwide releases of reported chemicals have declined dramatically since the TRI was established. And there is *no* doubt that the TRI reporting process, and the information it provides to the public, government agencies, and the reporting companies themselves, helped drive those releases down.

Providing More Useful Information

The American people now have better access to information about environmental conditions that affect their daily lives. During reauthorization of the Safe Drinking Water Act in 1996, EPA fought hard for the public's right to know about the quality of their drinking water. As a

result, consumers now receive that information from their water suppliers. We also acted to make sure home buyers and renters know about potential lead paint hazards before they move into a new home. This is especially important

TRI Data Drives Action, Gets Results

Citizens and local communities are using Toxics Release Inventory (TRI) data to assess risks and address concerns about their health and quality of life. The Georgia Environmental Policy Institute, for example, provided TRI data to a family in southwestern Georgia who needed information about toxic releases from a nearby plant to help their doctor determine the need for certain medical testing.

Several state agencies use TRI data to identify pollution prevention opportunities. The Colorado Department of the Public Health and the Environment used TRI and other emissions and waste data to target 10 industry sectors that were responsible for the largest quantities of hazardous waste generation or toxic emissions. The study helped the state set pollution prevention priorities and provided a basis for distributing technical assistance grants.

States also use TRI data to legislate additional environmental controls. In response to a report on unregulated toxic air emissions in North Carolina, the state set limits for 105 air pollutants, while its Clean Water Fund used TRI data and stream flow information to show that toxicity levels in 15 areas exceeded state and federal criteria for protecting human health and the environment.

for families with children, who can have developmental problems when exposed to lead.

While EPA is expanding access to more kinds of environmental information, we're also working to make it more relevant and useful. Until the last few years, people interested in environ-

Real-Time Data for Real-World Decisions

Recent efforts to develop real-time reporting capabilities are laying the groundwork for much more timely, informative reporting about environmental conditions. For example:

- In Maryland, water quality data collected in the summer of 1999 enabled the state to quickly determine—and report—that low oxygen levels, not *Pfiesteria*, were responsible for a fish kill on the Pocomoke River.
- In Des Moines, Iowa, frequent monitoring and reporting enables residents to learn about the quality of their drinking water on a daily basis.
- In many school systems, educators, parents, and children are able to instantly measure and monitor personal exposures to ultraviolet radiation and to learn sun safety behavior that can help prevent skin cancer, cataracts, and other sun-related health effects.
- In major cities, people can go online and find daily levels of ground-level ozone, a pollutant that can cause and aggravate respiratory problems and impair human immune systems.

mental conditions only had access to historical data that may have been collected months or even years earlier. In 1997, EPA set out to develop real-time reporting capabilities to provide people with more timely information that could be put to immediate use.

EPA joined with the U.S. Geological Survey, the

National Oceanographic and Atmospheric Administration, and the Department of the Interior in developing the Environmental Monitoring for Public Access and Community Tracking program. This program works with state and local governments to provide the public with up-to-date information about local environmental conditions. Since its inception, real-time reporting projects have been started in 85 U.S. cities.

At EPA, we are working to create an environmental protection system that works better for all parties, including individuals and families, school and civic groups, and local government officials who are working to improve conditions in communities throughout the country. The American people have much to contribute to environmental progress, and over the past decade EPA has taken innovative steps to give them the opportunity and information to participate successfully. We are working to ensure that their voices are heard when environmental decisions are made, and we have set the stage for a much more open, inclusive system of environmental protection in the 21st century.

The Challenges Ahead



The innovative ideas that EPA has tested and put in place over the past decade have helped our traditional regulatory programs achieve better results at less cost. They have strengthened our partnerships with state governments, private businesses, local communities and other federal agencies. They have supported more extensive and informed involvement in decision-making by the public, and increased environmental and public health protection throughout the country.

Yet the greatest benefits are likely to be seen in the future, for what we learned in the last 10 years of innovation will be carried forward in our work. It will affect how we solve the problems still confronting us today, like smog and polluted runoff. And it will affect how we address new challenges as they emerge.

Already, we see issues on the horizon that could affect environmental quality and public health in significant ways. The long-term effects of global warming may cause significant economic and environmental disruption. Emerging markets and a global economy pose questions about how to meet growing consumer demands in a sustainable manner. We don't fully understand how certain chemicals disrupt reproduction and other basic biological functions. And we've just begun to consider the possible long-term impacts—and unintended side effects—of genetic engineering.

The future will undoubtedly raise other challenging issues, but we are now better prepared to respond. We know that a wide variety of environmental strategies—regulatory and non-regulatory—are possible. The greatest challenge in the future will be to select among all the options available to design the most effective response to existing and emerging environmental problems. In some cases, nationwide laws and regulations will continue to be the best way to reduce risk. But in others, tailored strategies that involve market-based approaches, partnerships, or performance incentives may offer better results at lower costs. Moreover, the stakeholders who join in partnerships will vary, bringing different perspectives and resources, depending on the environmental problem in question.

Environmental solutions through new partnerships and new tools—that is our expectation for the future. And we will meet that expectation with a spirit of innovation that took root at EPA during the 1990s, tailoring our responses to environmental risks with unique combinations of tools and partnerships that best attain the nation's environmental goals.





For More Information

More information about innovation at EPA can be found on the Internet at <http://www.epa.gov/opei>, or by calling EPA's Office of Policy, Economics, and Innovation at 202-564-4332. Our organization supports EPA's mission through economic analysis and by promoting innovation to achieve greater, more cost-effective environmental and public health protection. Through our work with many diverse partners, we provide a gateway to information about some of the most current and exciting innovations in the environmental management field.





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