1. TOOLS

FOR

RAISING REVENUE

1. TOOLS FOR RAISING REVENUE

This Section describes specific financial mechanisms which States and localities can use to raise revenue to dedicate to funding environmental protection. Four ways of generating monies are presented: taxes, both general and selective; fees; special charges primarily for "polluting" activities; and pollution control fines and penalties. While many of these tools are used by the federal government, the primary focus here is on State and local governments.

Taxes are by far the largest source of revenue for State and local spending, and are imposed on individual and business income and property, and commodity sales. Sales taxes, often termed sales and use taxes, may be general in nature or selective, such as tobacco taxes. In contrast, fees are much less universally used and generate far less revenue. Fees are fixed charges paid for governmental administrative services such as permit issuance, activities such as park fees, and for utility services (user fees). Of these, only user fees raise significant revenue. Special charges are similar to fees but are aimed specifically at "polluting" activities such as effluent and emission discharges and development impact fees. Fines and penalties are monetary or in-kind payments assessed by government on violators of environmental laws and regulations, and in this *Guidebook* include Superfund liability cost-recovery. Both special charges and fines/penalties are used sporadically and selectively by governments.

Raising revenue through taxes, fees and other means is a multi-step governmental process, and all steps are complicated and controversial. Imposition of charges is only the first step in the legal process. Taxes, fees and special charges also must be designed to enable systematic collection and limit possible circumvention. The next step of ensuring environmental dedication is just as critical. Dedication to environmental improvements is by no means a foregone conclusion, even for supposedly earmarked taxes, since all government-funded programs including social services vigorously compete for monies and the popularity of environmental issues rises and falls over time. Dedication can be made directly to a specific project such as a park, or indirectly as a source of bond repayment.

Some revenue generation tools are more suitably dedicated to specific environmental work than others. For example, large and relatively stable revenue sources may be ideal for environmental infrastructure capital and land-related projects such as parks, while smaller mechanisms can fund program operating functions such as personnel, monitoring, and technical assistance. Some taxes, fees and special charges have dual purposes of revenue raising but also as market devices to alter polluting behavior, which may result in lower revenue collection. State and local governments understand that imposing costs is onerous to those who pay, unlike many tools presented in this *Guidebook* which arise from the voluntary action of individuals and businesses.

1.A. TAXES

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Description: Most taxes are charged against income, property or sales. Income taxes are charged as a percent of the money earned by an individual or corporation; property taxes are based on a percentage of the value of property owned; and commodity taxes; typically called sales and use taxes, are charged as a percentage of commodity value or a flat rate per transaction. Most States have a general sales and use tax on retail sales of commodities, and local governments often have riders charging an additional surtax to fund local government. In addition to general sales taxes, all States and many localities impose selective taxes on the sales of particular products or services, such as gasoline and tobacco taxes. In all, 23 States earmark a portion of State taxes to the environment, although there is considerable variation among States. In this report, tax "base" refers to the segment of population, products, activities or pollutants on which charges are imposed. Tax "rate" refers to the structural design of tax schedules, i.e., whether flat rates, graduated rates, volume/toxicity based rates, percentages, or other structures are employed.

Advantages: Taxes typically have a broader revenue base than the fees presented in Part B, and therefore can generate high revenues at relatively low rates, although the special charges in Part C also have significant potential. For example, States can levy sales taxes on fertilizer at rates of cents/per pound and generate millions of dollars annually. Dedicating a surcharge on an existing tax to environmental programs, or even a percentage of existing taxes, involves little additional administrative costs. Local governments sometimes can pass a "piggy-back" tax on existing State taxes, generating local revenue, although in some States this may require legislative authorization and voter approval. In most States, income, property and sales data are already reported, thus further reducing administrative costs of new surcharges.

Limitations: Public opposition to new or increased taxes often hinders legislative passage. Unlike fees, many taxes are used for general budgetary support and historically have remained undedicated to particular programs, with clear exceptions such as gasoline taxes. In some States, institutions do not exist for arranging the dedication of taxes to particular programs, or there may be constitutional or statutory limitations on dedication, or "earmarking" as it is often termed. Depending on the market in question, some taxes may be inappropriate financing mechanisms for those pollution control activities that require a predictable amount of revenue every year. Tax bases may shrink due to general economic conditions or behavioral responses to tax imposition, such as conservation of product use or product substitution in the case of some selective sales taxes. Also, unless the tax is targeted to a particular type of property, income or sales, there is only an indirect relationship between the tax base and use of funds, what is termed herein a weak cost/benefit relationship.

Two types of taxes are discussed here: **General taxes** and **selective sales taxes**. The operating principles and dedication opportunities are different in these two cases, so they are evaluated separately in the following pages.

1.A.1. GENERAL TAXES

1.A.1. GENERAL TAXES

Description: A general tax is a tax whose burden falls upon very broad section of the general public, such as wage earners or property owners. State and/or local general taxes are charged against personal and corporate income, property, and commodity sales. Income taxes are levied as a percent of the money earned by an individual wage earners or corporation. Property taxes are based on a percentage of the value of property owned. General commodity taxes, called sales and use taxes, are imposed as a percentage of the commodity value, or as a flat rate per transaction, and are contrasted with selective sales taxes discussed later. General taxes may fund environmental projects through earmarking or specific tax surcharges or add-ons. Historically, States have set the rules for how local governments are organized and conduct their affairs, including raising money. Recently however, localities have appeared more active in seeking and receiving more finance discretion for increasing taxes.

Advantages: General taxes typically have a broader revenue base than other revenue sources and therefore can generate high revenues at relatively low rates. Not only is the tax base large, but income tax rate structures typically are graduated, or proportional, thus increasing equity. Sales and property taxes are more regressive. When local support is high, temporary local tax surcharges may be an effective environmental financing avenue.

Limitations: Imposing or increasing general taxes generally requires legislative action and public opposition often hinders its passage. Since general taxes are not targeted at a particular type of environmentally-related property, income or transaction, there is only an indirect relationship between the tax base and the use of the funds (i.e., a weak cost/benefit relationship). General taxes are a more traditional source of revenue for programs such as education and social services, and thus may be already "tapped out". It may be difficult to safeguard the earmarking of portions of general taxes for environmental purposes over time, since the competition from other programs will persist. A serious concern also pertains to whether earmarking of general tax revenues constitutes sound budgetary and fiscal policy, since earmarking constrains current policy makers' ability to direct funds where they may be most needed, or demanded, at any particular point in time.

Summary: Historically, general taxes have not been the best source for environmental funding compared to revenue sources aimed at more specific products or activities with a more direct relationship to the environment. In particular, State earmarking has been rare. However, in recent years States have granted localities more authority to levy tax surcharges or add-ons which have been dedicated to the environment, especially parks and conservation.

The nine general taxes described here are compared using seven criteria including:

1. Actual Use: Actual (current) use may indicate the developmental stage of individual taxes, i.e., how long they have existed, how widely available or applicable they are on a geographic basis, and their acceptability. Taxes presented in the section must be **dedicated** to environmental protection to be counted. The number of States using a tax allows some numerical data to be included in the ratings from "High" to "Low". For example, high use might mean a tool is used in over 25 States, as opposed to low use meaning under 10 States. Actual use cannot measure the potential effectiveness of new taxes, since by definition they are in their infancy.

2. Revenue Size: This criterion helps indicate the annual sum of money raised or invested, or in some instances the potential sum of money. Revenue size is rarely expressed in dollars since in most cases this data has not been collected nationally. Where a tax's use is low because it is new or not directed to the environment, **potential** revenue size is estimated. Revenue size may give an idea of the actual or potential effectiveness of a tax in terms of environmental benefits, but not in relation to total environmental needs. Low revenue size may not mean that a tax is ineffective, because it may be offset by other criteria scoring high, i.e., the ability to leverage other resources, or enhance environmental awareness. However, it may signal problems, i.e., by suggesting that levying a tax cannot be justified in terms of added administrative costs, time and political difficulties.

3. Revenue Stability: The relative stability and predictability of annual revenues is compared for each tax to indicate whether the revenue source can be relied upon and readily estimated, audited, and factored into budgetary decisions. Revenue stability can influence the dedication and use of taxes. Stable revenue receipts would be suitable for funding State operating budget costs such as personnel, while larger, steady revenue streams could be used for capital infrastructure construction. Many factors contribute to revenue instability, such as product substitution, pollution "havens" in different geographical areas, political decision-making, tax laws and general economic conditions.

4. Administrative Ease: Administrative ease addresses practical issues pertaining to the providers and users of a tax. Such issues include the tax's complexity/simplicity, demands on staff to handle paperwork, applications and red tape, and the flexibility in administration and use. Administrative ease also can refer to users of a tax, i.e., whether it is complicated, whether using it is burdensome in terms of staff time and paperwork, whether expensive legal advice is required, and whether voter approval must be sought. Taxes which provide hands-on technical assistance can be administratively time-consuming for the provider, but on the other hand are easy to use for the client.

5. Equity: Equity can be used to compare the extent of public participation in the choice to use a tax, or even how to structure it. For example, a tax which requires local voter approval is described as highly equitable. Equity also is used extensively to compare the accessibility of the tax to small versus large potential users and to compare the costs of the tax for different clients or those who pay. Taxes are most equitable if they reflect affordability concerns or special circumstances of the user, for example, in the case of taxes adopting graduated or non-regressive rate structures. Taxes which are paid for by non-residents as well as residents, both of whom may benefit from an environmental improvement, also are highly equitable. Taxes are relatively inequitable if all users pay the same price regardless of economic circumstances, if small users pay more since investment is considered more risky, or if certain businesses pay much more than others. Some taxes are simply not available to certain small users if they are too costly or complicated, and thus are not particularly equitable.

6. Cost/Benefit Relationship. This criterion addresses "who pays" and "who benefits" from the environmental investment made with the taxes collected. A high or close cost/benefit relationship results when those who pay can see or directly benefit from specific environmental projects, such a temporary tax add-on to acquire park land. A high cost/benefit relationship may enhance public acceptability of a tax. It also describes situations in which the "polluter pays" principle is applied, although this may result in inequities if costs are economically burdensome.

7. Environmental Benefits: Environmental benefits may be both direct and indirect. The most obvious environmental benefit occurs when a project proceeds as a result of using a tax, such as construction of a water treatment plant or brownfields redevelopment. Other environmental benefits may be indirect, i.e. paying a tax may result in heightened public awareness of environmental problems and public financing possibilities, as well as change polluting behavior. Some taxes may call attention to positive as well as negative environmental impacts and provide incentives to increase environmental financing. In this *Guidebook*, only those financial tools which have no known environmental impact or are neutral are described as "Low".

LIST OF GENERAL TAXES
(In Alphabetical Order)

*****1. Corporate Gross Receipts Taxes
2. Corporate Income Taxes
3. Death and Gift Taxes
4. Individual Income Taxes
*****5. Local Sales Taxes
6. Personal (Tangible) Property Taxes
*****7. Real (Ad Valorem) Property Taxes
*****8. State Sales and Use Taxes
9. Value-Added Taxes

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

CORPORATE GROSS RECEIPTS TAXES

Description: These corporate taxes are assessed on the gross receipts of businesses, in some States in lieu of corporate income taxes.

Actual Use: Several States have general taxes on gross receipts of businesses. Portions of these receipt revenues are targeted to specific environmental programs. For example, Delaware dedicates 2.9% of its general gross receipts taxes to a hazardous waste clean-up fund. New Jersey has a general hazardous waste gross receipts tax dedicated to site clean-up.

Potential Use: Gross receipt tax revenues in each State from particular businesses could be dedicated to the environmental program area that the business activities affect. For example, monies from the gross receipts of dry cleaning businesses could be used to fund small source air emission reduction programs.

Advantages: When tax revenues are dedicated, businesses engaged in environmentally-sensitive activities pay for the remediation of problems. Unlike net income taxes, gross receipts taxes are based on the full size of the business and are charged against a broader revenue base. Revenue yield could be quite significant, although it may vary considerably depending on general economic conditions or other factors. Dedicated taxes also mean that the cost/benefit relationship is sustained. Gross receipts taxes may be more simple and equitable, because they employ more reliable administrative and accounting procedures, than other kinds of taxes. For example, for hazardous waste, data on gross receipts are more accurate than data underlying a tax on hazardous waste volume produced or feedstock used.

Limitations: Gross receipts taxes may have a disproportionate impact on smaller businesses and on those with high receipts but also high costs. There is no incentive to improve management practices that contribute to problems, since producers pay the same percent tax regardless of recycling programs or other efforts at reducing solid waste. The lack of environmental incentives could be overcome if the tax were structured to provide rebates for recycling or waste reduction, but this would add to administrative complexities and result in lower revenues.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, Colorado, April 1995.

CORPORATE INCOME TAXES

Description: Corporate income taxes are based upon the net income earned by corporations in a given State. They sometimes are established as, and termed, corporate franchise taxes.

Actual Use: State dedication of corporate income taxes to environmental protection has been rare. Ohio dedicates 1.2% of its corporate income tax revenue to litter control and recycling. Pennsylvania allocates 3.8% of its capital stock and franchise tax to a hazardous waste clean-up fund. Arizona commits 0.2% of its corporate income revenue to environmental programs. The federal government uses an environmental tax surcharge on corporate income, under the Alternative Minimum Tax provisions of the Tax Reform Act of 1986, to fund part of the Superfund Trust Fund. The federal tax is 0.12% of taxable corporate income in excess of $2 million. A few States offer corporate income tax credits for land donations (see **Section 1.A.1.: Individual Income Taxes)**.

Potential Use: Corporate income tax revenues could be dedicated to finance environmental programs that stem from the corporate activity itself. For example, if two percent of revenues were generated from mining companies, the State could earmark that portion for erosion control, habitat restoration, and other activities that mitigate the environmental impacts of mining. Similarly, revenues from drink bottle companies could be used to finance state recycling programs.

Advantages: With a relatively broad revenue base, corporate income taxes or surcharges can be charged at relatively low rates and still generate significant revenues. They can spread the costs of the environmental impacts of business activities to out-of-state consumers, adding pollution control to the overall costs of production. For example, a paper company might pass on the cost of a corporate income tax to its customers via a price increase. These revenues could be used to help mitigate environmental impacts of the paper production process, and improve the equity and cost/benefit criteria.

Limitations: Increasing corporate tax rates may be politically difficult, since States attempt to be competitive with other States in order to attract corporations. Net income may not serve as a good measure of the actual size of a corporation, since many corporations have small incomes relative to their gross receipts. This reduces the equity potential of the tax. Of the three main state general taxes (i.e., personal and corporate income, and general sales taxes), the corporate income tax is the least stable. As net corporate income varies tremendously from year to year, the revenue stream will be unpredictable and thus may be unsuitable for some types of environmental program budgets. Corporate headquarters may be located in a different State from production activities, meaning that the revenues from the income tax may not go to the state that experiences environmental damage from a corporation's production activities.

References for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes,* Denver, CO, April 1995.

DEATH AND GIFT TAXES

Description: Death and gift taxes, or inheritance taxes, are taxes on inherited property or gifts worth more than a set amount. Inheritance taxes can be structured to provide tax relief for property owners making outright land donations or by placing conservation easements on inheritance land, even during a donor's lifetime.

Actual Use: All States now have inheritance tax programs although they vary considerably, Typically, State death and gift taxes have been dedicated to local government, pension funds, and local police and fire protection funds, but not the environment. Most States also structure inheritance taxes to provide tax relief for land donated to State or Local governments or nonprofit land trusts, although not always for conservation easements.

Potential Use: States could earmark a portion of death and gift taxes to general environmental programs. Alternatively, they could structure such taxes to encourage land conservation. Bargain sales of natural land to State and local park services, or anti-development deed restrictions (i.e., conservation easements), could be regarded as non-taxable gifts by the landowner, as is currently done under the federal tax code. While this does not raise revenue per se, it would lower the costs and increase the administrative ease of natural lands acquisition.

Advantages: Inheritance taxes provide a very broad revenue base. If taxes are structured to provide incentives for land donation, i.e., by offering tax-exempt status for the landowner, this may provide State and local parks with additional natural lands at a much lower cost than outright purchase. In times of tight State or local budgets, this facilitates continuation of open space acquisition programs. The donated land can be purchased and managed initially by State or local land trusts such as The Nature Conservancy, until the appropriate State or local agency can assume responsibility.

Limitations: Using death and gift taxes to provide incentives for land conservation or donations decreases government cash revenues. It may also be difficult to evaluate which gifts are actually valuable natural lands. While most States have natural heritage programs and work closely with non-profit conservation organizations to establish land protection criteria, for example, the presence of rare animal and plant species or natural habitats, potential land donors may not recognize such criteria. For "less valuable" open space, States or localities must then work with non-profit land trusts to sell such property and use the proceeds for other land protection activities.

Reference for Further Information: The Nature Conservancy, *Guidebook for Land Giving and Trusts*, Arlington, VA, 1993; The Trust for Public Land, *Doing Deals: A Guide to Buying Land for Conservation*, San Francisco, CA, 1997.

INDIVIDUAL INCOME TAXES

Description: Individual income taxes are assessed based on a specified percentage of income earned by individuals.

Actual Use: States and counties typically use income taxes for general fund support. Presently, at least 17 States earmark a share of their State individual income tax for local governments, most commonly for education. However, only a few States earmark for environmental purposes. For Example, Arizona earmarks 0.2% for environmental protection, in this case to a water quality revolving fund. The federal government has allowed deductions for donated land for some time. Other States use property tax credits for the same purpose.

Potential Use: A large potential use of State and local income taxes for the environment may come from income tax credits for land donations, conservation easements, and voluntary income tax check-offs (see **Section 8., Contributions of Land**). For example, North Carolina has an individual and corporate income tax credit of 25% of the value of the donated real property. When the initial $5,000.00 annual credit cap was raised to $25,000.00 in 1989, donations grew from $800,000.00 to $17.5 million. Credits can be carried over to succeeding years. California has discussed, but not passed, an ambitious credit of 60-85% of the value of land or water rights donated, which is weighted so that higher taxable incomes receive the lower percentage credit.

Advantages: Earmarking the income tax for environmental funding could provide significant revenues at a very low percentage rate, with a highly stable tax base and revenue stream suitable for dedicating to State or county capital infrastructure construction funds. Tax credits for land donated or easements could provide considerable incentives to landowners to make such donations, particularly in times when tax-averaging would be beneficial.

Limitations: In most States, it is politically difficult to increase and/or dedicate income taxes to specific programs. When income taxes are earmarked for education and other social programs, they may be "tapped out" already. Continued dedication of a portion of income tax revenues to the environment may be difficult to preserve. While individual income taxes are progressive and thus relatively equitable, there is no direct cost/benefit relationship to be attained through using this revenue source for environmental protection. As an alternative, many States are using special individual income tax check-offs for environmental purposes, as opposed to the income tax itself. This practice is discussed subsequently under Section 1.E.: Voluntary Programs.

Reference for Further Information: National Conference of State Legislatures, *Earmarking State Taxes*, Denver, CO, April 1995; The Trust for Public Land, *GreenSense: Financing Parks and Recreation*, Phyllis Myers, Editor, San Francisco, CA, Autumn, 1995 and 1997, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

LOCAL SALES TAXES

Description: Local sales taxes are add-ons to State general sales and use taxes, or may exist where there is no State sales tax. Depending on State constitutions, statutes and home rule traditions, most local governments must seek State approval to levy local sales taxes, as well as local voter approval. State authorization processes vary. States may give approval to all counties or communities, or limit it to a specific localities. Typically, local taxes are limited to a specified time period, or a dollar collection total, and a specific use. The dedicated revenue stream may be used to back local general obligation or revenue bonds or to pay for a specific program directly, such as parks and conservation.

Actual Use: Many States have given localities more leeway to levy taxes, and local residents have approved sales tax increases or new taxes. Revenues often are dedicated to open space acquisition, parks and recreation, historic preservation and other land projects. Missouri has given communities authority to raise taxes up to 0.5% for parks and stormwater improvements, and 29 have done so since 1995. Colorado has been flexible in allowing local taxes, and 17 municipalities and 7 counties use a sales tax increase of 1/10 cent for 12 years for land conservation. Carson City and Douglas County, Nevada, use a 1/4 cent "quality of life" sales tax add-on for open space and parks. Three Georgia counties have a 5-year, 1 cent sales tax for roads, parks, and recreation. Other localities with recent sales tax add-ons from ½ to 1 cent for 5-20 years include Albuquerque, Tulsa, Scottsdale, Suffolk County (New York), and counties in Florida where revenues are dedicated to nature centers, trails, environmental education, and parks. The first across-state tax of 1/8% was passed in four Kansas City counties in 1996, to raise $118 million to restore the historic Union Station.

Potential Use: Local sales tax add-ons are especially useful in high tourism areas and can support a multitude of environmental programs, including brownfields redevelopment, and wetlands, watershed and farmland protection through conservation easements and development rights purchases. Sales tax revenues often are used to capitalize local revolving environmental trust funds as in New Jersey and other States, and may attract State or private matching funds as in Kansas City.

Advantages: Specific approval of dedicated local sales taxes assures revenue use for a particular environmental purpose, and projects funded enjoy public support. Environmental benefits are direct, timely, visible, and heighten public awareness. Revenues can be sizeable and further leveraged.

Limitations: All sales taxes are highly regressive. State and local approval of tax increases may be time-consuming and is not assured. The environmental programs funded must be popular.

Reference for Further Information: U.S. Advisory Commission on Intergovernmental Relations, *State Laws Governing Local Government Structure and Administration*, March 1995; The Trust for Public Land, *Green Sense: Financing Parks and Conservation*, Phyllis Myers, Editor, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

PERSONAL (TANGIBLE) PROPERTY TAXES

Description: These are taxes levied on the estimated or assessed value of items of personal property such as automobiles and boats, but not land. Such taxes are charged on a recurrent basis, frequently annually or biannually, and sometimes are limited to property worth in excess of a specified dollar value, e.g., $2,000.

Actual Use: These taxes are used (not widely) by State and local governments for a variety of purposes, but there is no earmarking for environmental protection at the present time. For example, Virginia charges a flat percentage tax on the blue book value of all motor vehicles, but this is dedicated to highway and road improvements.

Potential Use: State and local governments could establish personal property taxes to mitigate the negative environmental impacts of the use of that property. For example, the revenues generated by a tax on air conditioners could be used for Freon disposal; revenues from a tax on lawnmowers and small engines could be used to fund small source air emissions reduction programs. States could further structure personal property taxes to encourage emissions reduction and/or energy efficiency by discounting tax rates on high-efficiency appliances such as heaters, refrigerators and air conditioners, and low-emission vehicles.

Advantages: Taxes on tangible property could be carefully structured to have a close cost/benefit relationship, depending on the particular purposes to which the tax revenues are dedicated. Also depending on the specific structure of the taxes, they may provide incentives for taxpayers to purchase higher efficiency appliances and vehicles, although this approach is somewhat inequitable as lower income individuals are less able to afford new equipment and cars. Revenue yields generated by personal property taxes tend to be moderate.

Limitations: Few governments have administrative systems in place to track ownership of personal property, aside from automobiles, so that administrative costs could be high and the tax easy to circumvent. The legality of state taxes on high-emission vehicles has been disputed in some states, such as in Maryland. These types of taxes may be highly unpopular with voters and subject to reduction and even elimination.

Reference for Further Information: Virginia Department of Revenue, *Annual Personal Property Tax Estimates*, Richmond, VA, 1993.

REAL (AD VALOREM) PROPERTY TAXES

Description: Real property taxes are charged to property owners as a percentage of the current assessed value of property. They are limited to local governments, and require voter approval.

Actual Use: There are two main ways localities use property taxes to fund environmental projects. The first is to earmark a specific portion of annual revenues, which is rare. The second is to direct a property tax increase or surcharge, temporary or permanent, to a specific purpose. Use of the latter method has been increasing. Dade County, Florida, dedicated over $45 million in one year to funding local natural areas. Colorado's Cherry Creek basin project uses a property tax increase to finance building artificial wetlands, channels and sediment holding ponds to control nonpoint sources. The most publicized use is in New Jersey. By 1997, two counties and 21 municipalities had passed a one or two penny per $100 in value "land preservation tax" to finance open space and farmland trust funds. Los Angeles County, Kings County, Washington, Helena, Montana and Marion, Massachusetts use property tax increases to fund greenways, open space, parks, beaches and shorelines. Several Michigan towns use property tax surcharges to buy development rights on farmland. Spokane, Washington has a "conservation futures tax" of 6 cents per $1000 to buy open space and buffer lands. A third way of using the property tax has occurred in Maryland, which offers a property tax credit to donors who give perpetual easements to the Maryland Environmental Trust.

Potential Use: Any land-based protection or recreation program could be funded through the property tax, as well as any environmental infrastructure popular enough to be approved by residents. Revenues can go to local trust funds, serve as collateral for general obligation or revenue bonds, and leverage State funds. For example, New Jersey's Green Acres Trust Fund makes 25%grants and low-interest loans to localities with dedicated taxes and open space plans.

Advantages: Most local governments have administrative systems in place for assessing real estate values and collecting taxes, which reduces administrative costs. The property tax provides a relatively large and stable revenue base. Voter approval of tax increases to pay for specific environmental projects, and visible results, helps ensure revenue dedication. Additional monies can be leveraged when public commitment is clear, including matching funds.

Limitations: Some localities have statutory limits on property tax levels. Competition for revenues is keen and environmental dedication may be difficult to safeguard. Many proposed tax hikes have been defeated. California uses a landscape and lighting law as an alternative, which enables property owners in developing communities to assess themselves for parks and open space.

Reference for Further Information: The Trust for Public Land, *GreenSense: Financing Parks and Conservation*, Phyllis Myers, Editor, San Francisco, CA; The Trust for Public Land, Mid-Atlantic Regional Office, *On the Land*, Winter/Spring 1998, New York, NY; The Trust for Public Land, *Lands and People*, San Francisco, CA, Spring 1998, Telephone: 800-714-LAND.

STATE SALES AND USE TAXES

Description: State sales and use taxes are based and levied on the value goods sold in retail stores. The scope of coverage of these kinds of taxes could be broadened to also include out-of-State mail order sales to State residents.

Actual Use: Compared to corporate and personal income taxes, State earmarking of general sales tax revenues has become more common in recent years. Currently, at least five States dedicate a percent of their general sales and use taxes to environmental programs. For example, Missouri dedicates 2.9% of its tax revenues to a conservation fund, including non point source control (0.1%); North Carolina dedicates 0. 1% of its revenues to a Wildlife Resources Fund; Idaho dedicates 1.5%, and Washington 0.1%, of revenues to water pollution infrastructure funds; and Florida earmarks 0.2% to a solid waste management fund. Increasingly, States have been allowing counties or cities to charge an additional rider on the State tax, which may also be dedicated to environmental programs (see **Section 1.A.1., Local Sales Taxes**). In Sacramento, California, the county rider on the State sales tax is dedicated to funding the local air quality management district.

Potential Use: States could choose to earmark a specified percentage of their sales and use tax revenues to fund environmental programs. Application of the tax to out-of-state catalog mail order sales, which are typically not taxed unless a retail store exists in the purchaser's state, would broaden the revenue base considerably.

Advantages: The revenue base generated by State sales and use taxes is quite broad and relatively stable, and thus even small percentages of a general sales and use tax can bring in significant revenues.

Limitations: Sales taxes are inherently highly regressive, and thus equity is not attained. The cost/benefit relationship is not immediately obvious unless taxes on specific goods can be related and dedicated to related environmental programs, but this may prove administratively burdensome and too complex. States and localities may have statutory limitations on general sales tax increases and earmarking. Environmental dedication may be difficult to sustain.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995.

VALUE-ADDED TAXES

Description: Value-added taxes (VATs) tax the addition to the value of consumer goods or services created at each stage of production or distribution. The VAT is an alternative way of collecting a tax on consumption expenditure: it does not tax a base different from other sales taxes. The VAT resembles a sales tax in that each trader adds the tax to sale invoices issued and accounts for the tax so collected. However, traders deduct the tax paid on invoices received for goods and services.

Actual Use: Michigan's single business tax utilizes value-added principles in part, as does a portion of the Louisiana retail sales tax, but, on the whole, the concept remains generally unused throughout the United States.

Potential Use: The VAT is applicable to any State or local sales tax. Implementation of a 10 percent VAT in the three production stages of manufacturing, wholesaling, and retailing is illustrated as follows: A wholesaler buys inputs valued at $500 from manufacturers and sells outputs valued at $900 to retailers. Accordingly, the wholesalers' value-added equals $400. The tax owed by the wholesaler equals $40, $400 times 10 percent. The tax is collected by applying the rate to the transaction price ($900 times 10 percent = $90) and applying a credit for tax paid at earlier stages ($50); the net is the tax on value added ($90 - $50 = $40). The sum of all values added in the process ($500 at manufacturers, $400 at wholesalers, and $300 at retailers) equals the final value of the product ($1200) and the tax generated at each stage ($50, $40, and $30) equals the amount from the same rate sales tax on the final value ($120).

Advantages: VAT is a multistage tax that produces a burden equivalent to that of a single stage retail-sales tax. The tax is a constant proportion of the retail price of the product; it does not vary according to the number of transactions in the production process, as normally occurs under multistage taxes. As a result the tax does not pyramid because it depends on the value added at each stage, not the total transaction price at each stage, and each firm receives credit for taxes paid in prior stages of the product flow. Thus, the tax base for any firm in the production-distribution process will equal its value-added -- the difference between the value of its sales and the value of its purchases -instead of the value of its sales (or gross receipts). The self-enforcing nature of VAT makes it attractive when the tax-compliance climate is not good. VAT induces purchasers to require a documented receipt from vendors for taxes paid, because those receipts will be used to pay part of the taxes vendors will owe when they make sales. Vendors pay the tax because the purchasers of those items demand tax receipts for credit purposes,

Limitations: The European experience with VAT shows that tax evasion still exists and delinquency continues to be a problem, despite the self-enforcing nature of VATS.

Reference for Further Information: Mikesell, John L., *Fiscal Administration: Analysis and Applications for the Public Sector*, Third Edition, Brooks/Cole, Belmont, CA, 1991.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR GENERAL TAXES

Criteria/ General Taxes	Actual Use	Revenue Size	Revenue / Stability	Administrative Ease	Equity	Cost/ Benefit Ratio	Environmental Benefits
***Corporate Receipts**	Low	High	High	High	Mod.	Mod.	High
Corporate Income	Low	High	Mod.	High	Low	Low	Mod.
***Death/ Gift**	Low	Mod.	Low	Mod.	High	High	High
Individual Income	Low	High	Mod.	Mod.	Mod.	Low	Mod.
***Local Sales**	Low	High	High	High	Low - Mod.	Mod.	Mod.
Personal Property	Low	Low	Mod.	Low	Low	Mod.	Mod.
***Real Property**	High	High	High	High	Low	Mod.	High
***State Sales and Use**	Low	High	High	High	Low	Low	High
Value Added	Low	Mod.	Mod.	Low	High	Low	Mod.

High - High use (over 25 states/many localities); criteria score high (many advantages); High revenue yield (over $50 million annual state revenue, currently)

Mod - Moderate use (10-25 states/many localities); criteria score in medium range; Moderate revenue yield

Low - Low or rare use; criteria do not rate well (many limitations, and one or more major implementation problems); Low revenue yield

* Star indicates best rated mechanisms

1.A.2. SELECTIVE SALES TAXES

1.A.2. SELECTIVE SALES TAXES

Description: Selective sales taxes are taxes on the sale of particular commodities or services. Selective sales taxes include all other sales and use taxes that are not applied to the general public as a whole. These taxes are sometimes termed excise taxes. They are levied either as a percentage of the sale or price of the item, or as a flat charge per item. Compared to general sales taxes, selective sales taxes have been more widely used by States and localities, although for environmentally-related products (e.g., fertilizer/pesticide taxes as opposed to alcohol taxes) the revenue yield is not yet high.

Some selective sales taxes are collected annually at the point of production, as opposed to the point of sale, to enhance administrative efficiencies in collection. For example, gasoline taxes typically are paid by manufacturers, who then are reimbursed from revenues collected at the gasoline pump. Many green product taxes can be most efficiently collected directly from producers or distributors, who typically will pass on costs to consumers. Selective taxes which do not involve sales, such as effluent fees, are discussed under **Section 1.C.: Special Charges**.

Advantages: Selective sales taxes are more easily dedicated to a particular environmental program compared to general sales taxes, since there often is a more direct relationship between the particular type of product in the tax base and the use of the funds for environmental purposes. For example, the gasoline tax can be dedicated to oil pollution control, the real estate transfer tax to bond related acquisitions, and certain green product taxes to water quality. Such taxes may have inherent environmental incentives, i.e., avoiding the tax may lead to behavioral shifts resulting from conservation of use or purchase of "safer" products, although this reduces revenue yield. Some taxes such as the real estate transfer tax, have been used to make interest payments on environmental bonds.

Limitations: The tax base for selective sales taxes is much narrower than for general taxes. Therefore, a higher rate must be charged to generate the same amount of revenue, which may cause inequities. Sales taxes typically are highly regressive, since it is difficult to use graduated rate structures depending on the economic circumstances of the purchaser. However, more "toxic" products could bear higher tax rates than less toxic products, if this could be appropriately measured. Pollution "havens" may arise between States and localities when taxes are not uniform local sales taxes typically must have State approval.

Summary: State use of selective sales taxes is widespread, and for environmentally-related products and services is increasing. However, revenue yield remains modest and there is little uniformity among States. Some high revenue-producing taxes used in virtually all 50 States, such as alcohol and tobacco taxes, rarely are dedicated to environmental programs.

LIST OF SELECTIVE SALES TAXES
(In Alphabetical Order)

1. Alcoholic Beverage Taxes
2. Amusement Taxes
3. Energy Taxes
4. Fertilizer/Pesticide Taxes (Agricultural Chemicals)
*5. Green Product Taxes
*6. Hard-to-Dispose Taxes
*7. Hotel and Resort Taxes
8. Insurance Premium Taxes
9. Litter Control Taxes
10. Marine and Aviation Taxes
11. Miscellaneous Selective Sales Taxes
*12. Motor Fuel Taxes
13. Motor Vehicles Sales and Registration Taxes
14. Petroleum Products Taxes
*15. Real Estate Transfer Taxes
16. Rental Car Taxes
*17. Tobacco Taxes
18. Watercraft Sales Taxes

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are used for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

ALCOHOLIC BEVERAGE TAXES

Description: Alcoholic beverage taxes are based on volume or value, and include liquor, wine and beer. Along with tobacco and lottery/gambling taxes, alcohol taxes are often termed "sin" taxes. Wine coolers and similar beverages could be included.

Actual Use: All 50 States, many localities, and the federal government, levy rather steep taxes on over-the-counter purchase of all alcoholic beverages. Half of the States currently earmark alcohol tax receipts, typically for local revenue-sharing and State alcoholism prevention and rehabilitation programs. However, no States have dedicated alcohol tax revenues to environmental protection as yet, although this is proposed from time to time.

Potential Use: Since alcohol is distilled from agricultural products, State or local governments could dedicate a surcharge on the alcohol tax to agricultural runoff control or other land-based programs. Alternatively, since breweries require a large volume of very clean water and discharge wastewater from distilling processes, revenues could be dedicated to drinking water treatment and point source water pollution control programs. Breweries might also be taxed directly. Tax surcharges could be extended to currently non-taxed consumption, such as at military commissaries. Imports would have to be accounted for.

Advantages: Since administrative records of alcohol sales already exist, a tax surcharge would be administratively simple to collect and track. Consumption is widespread, and thus revenues could be significant with an additional tax, for example, of 1%. The demand for alcohol is relatively unresponsive to price changes, and thus a tax increase may not cause a decrease in sales sufficient to full offset revenues.

Limitations: All consumption taxes are highly regressive and, therefore, may be considered in this context as inequitable. Since alcohol taxes already are extremely steep, additional costs may impose undue hardship. The cost/benefit relationship is questionable. Depending on the State, alcoholic beverage taxes would face strong opposition from the alcohol industry. Lack of uniformity among State taxes and surcharges already has given rise to pollution "havens" between States, with consumers crossing State lines to make purchases, thus reducing tax yield for some States. It might be difficult to retain the dedication of alcohol surcharges for environmental programs, since total revenue yield is large and commonly "tapped out" for other State and local programs.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995; U.S. Advisory Committee on Intergovernmental Relations, *Significant Features of Fiscal Federalism*, 1991.

AMUSEMENT TAXES

Description: Taxes on ticket sales to sports or entertainment events, or on gross receipts from events. Parimutuel taxes are charged on amounts wagered at race tracks. Gambling casinos could be included as well. Use of lottery ticket purchases is discussed subsequently in **Section 8., Environmental Lotteries**.

Actual Use: Amusement taxes are used by both State and local governments for a variety of purposes, including stadium construction and renovation. However, dedication to environmental programs is rare. Illinois dedicates a share of proceeds from its parimutuel tax to local park districts, and Oregon earmarks a small portion for youth conservation programs.

Potential Use: Revenues from amusement and gambling taxes could be used to offset the impact of large numbers of visitors to a particular site or area. For example, a county with a sports arena and/or a theme park could use the tax funds generated to cover additional water and solid waste disposal costs created by visitors. States could dedicate amusement taxes to recycling, litter control, or greenways beautification programs.

Advantages: Amusement taxes spread the costs of providing government services to benefitting visitors. Ticket sales are relatively easy to track, although government collection systems must be established. Taxes are highly equitable in that non-local and out-of State residents can help subsidize the cost of governmental services.

Limitations: Demand for tickets to sporting and other entertainment venues can be relatively sensitive to price increases, and therefore taxes could reduce the number of tickets bought and thereby lower revenues. Revenue yield may not be high.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995.

ENERGY TAXES

Description: Energy taxes are surcharges on regular customer utility bills, such as electricity, heating oil or gas, and even telephone charges. Energy taxes could also be charged directly to utility companies, which then probably would pass costs on to consumers.

Actual Use: Many localities, and a few States, have energy surcharges taxes to fund environmental programs among other uses. Maryland has a special electric energy tax which is reflected on regular electric bills to all customers, and California has a small utility sales tax based on kilowatt generating capacity. Massachusetts also has established a sales tax on all utility bills. Overland, Missouri has a 3.5% utility surcharge dedicated to open space and greenways. A Federal "BTU Tax" was proposed and widely discussed in 1993, and the concept of energy taxes in general is often debated.

Potential Use: Any utility bill could be a vehicle for such surcharges, the receipts of which could be dedicated to the corresponding program, such as heating fuels to spill prevention and recovery projects, and electricity surcharges to air pollution control and acid rain programs. The concept could be extended to cable television services, as well as telephone services although these are already subject to federal, State and local taxes.

Advantages: Energy consumption is readily estimated and tracked on a national, State and local basis. Tax surcharges would be easy to collect through regular billings, which the utility company then would rebate to the relevant governmental unit. A very close cost/benefit relationship might be attained depending on subsequent program dedication, since energy production has such strong environmental impacts. Even low-level increases to annual residential costs for total energy consumption, such as $5.00 per year, is estimated to yield $10 billion nationwide. The yield would be relatively stable, and any resulting energy conservation could yield important environmental benefits. State and local governments could structure surcharges to reflect local economic conditions and existing tax burden, and provide special subsidies, e.g., for lower income households.

Limitations: Compared to water and sewer utility charges, heating fuel and electricity costs are already steep, although smaller than the relative costs of cable television. Thus, the impact on some residential customers could be high within an already highly regressive cost structure. Graduated tax structures might enhance equities but would be administratively complex since, other than heating fuel for the elderly in some localities, utility bills are rarely subsidized. If based on the cost of providing energy, revenue yield could fluctuate dramatically with the price of oil.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995; Warren, Richard E., "Funding Environmental Values," presented at the Public Works and the Human Environment International Symposium, Seattle, Washington, April 1995.

FERTILIZER/PESTICIDE TAXES
(Agricultural Chemicals)

Description: Agricultural chemical taxes are imposed on fertilizers, pesticides, agricultural additives and minerals, and some herbicides, either as a retail sales tax or as a sales production tax, i.e., a tax placed directly on the producer, manufacturer or distributor but based on a percentage of the item value to be sold. They represent a type of green product sales tax.

Actual Use: At least four States, Wisconsin, Iowa, Minnesota and Oregon, assess a surcharges on fertilizer/pesticide sales or charge producers/distributors directly. Typically, these and other States also charge fertilizer/pesticide product inspection, registration and/or licensing fees (discussed subsequently under Part B: Fees). Wisconsin charges $2,000 for each manufacturer of the active (toxic) ingredients in a pesticide, and $100-$300 for pesticide distributors; Iowa assesses a dedicated tax on nitrogen-based fertilizers at $.75 a ton; Minnesota levies a sales surcharge on all agricultural chemicals collecting $2.5 million annually; and Oregon levies a $.20 -.60 per ton tax on producers.

Potential Use: This tax could fund remediation of agricultural nonpoint source and groundwater pollution. It could also be used to fund research and technical assistance for sustainable farming techniques that have reduced environmental impact.

Advantages: The tax could generate significant revenues due to the relatively large volume of fertilizers and pesticides used. States could employ graduated rate structures which vary according to the toxicity of the ingredients in each item, thus improving equity considerations. Such taxes are relatively easy to collect if imposed on producers directly, and may discourage excessive use of harmful products (leading to declining revenues). They could include residential garden use.

Limitations: Although there is a direct cost/benefit relationship between agricultural chemical use and pollution, it would be difficult to apply all revenue receipts to nonpoint source projects because such projects are generally lower cost compared to point source projects. The tax is highly regressive and inequitable in terms of the cost to small farmers versus large agricultural businesses, and impacts vegetable and fruit producers especially hard. Taxes would be strongly opposed by the agricultural lobby because of the importance of fertilizers/pesticides to reliable crop production. Pollution "havens" between States might be created if the taxes were not uniform across States. As a sales tax, fertilizer/pesticides taxes might be as efficiently and equitably administered at the federal as opposed to State level, although then would fall most heavily on crop producing States.

References for Further Information: National Conference of States Legislatures (NCSL), *Financing Clean Water*, Non Point Source Pamphlet, June 1991; U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996; Congressional Research Service, *Funding Water Quality Programs*, 1992.

GREEN PRODUCT TAXES

Description: Green product taxes are sales tax surcharges, which might be levied on a large range of household and commercial products which negatively impact water or air quality. The use of the term "green" here implies that the product is potentially harmful, not "safe". Taxes may be imposed as a percentage of value, or a flat fee per item (**see Section 7, Deposit Refund Systems**).

Actual Use: States increasingly use green product taxes, although they still are most prevalent as hard-to-dispose products taxes, pesticide/fertilizer taxes, and petroleum product taxes, described separately. The majority of States now have recycling program charges (e.g., aluminum cans and some plastics). Examples of newer green product sales tax programs include Florida's taxes on toilet paper and dry cleaning solvents, Wisconsin's taxes on de-icing salts, and Washington's wood stove sales tax. Illinois and Washington also have sales tax surcharges on various toxic products. The federal government has established a tax on ozone-depleting chlorofluorocarbon yielding almost $1 billion annually. Green product taxes are used extensively in Western Europe.

Potential Use: The list of potential products in a tax base is very long, and includes: personal cleaning products (soaps, shampoos, mouthwash, etc.); household paper products; cleaning products and solvents; chlorides; detergents; cooking oils; plumbing fixtures, chemicals, and copper pipe; paint products; photo processing chemicals; and synthetic dyes and inks.

Advantages: These taxes could generate significant revenues, if a wide array of products were included in the tax base and rates were at 3% or more of sales price. When collected directly from producers/manufacturers as opposed to over-the-counter, they are relatively easy to collect. They can heighten awareness of the negative environmental impacts of such products, and lead to behavioral shifts such as conservation and the development of new, "safe" products.

Limitations: These taxes are regressive, impacting both small producers and consumers adversely. It is difficult to define and limit the tax base, as the list of harmful products is so large, and data on adverse environmental impacts small. The lack of quantitative toxicity data makes it difficult to employ a more equitable, graduated rate system for different products. Administrative complexities impact the stability and predictability of the revenue stream, as new products and producers will appear or disappear over time, and be imported. These taxes create pollution havens if the tax base and rates are not uniform across States, which is hard to achieve. Industry and consumer resistance may be high. For many products, green taxes may be best run as a federal and not State program.

References of Further Information: U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1966; Natural Resources Defense Council; Reprint of "Life and Taxes", *The Amicus Journal*, 1995; Association of Metropolitan Sewerage Agencies, "A Federal Green Fee for Clean Water", July 1996.

HARD-TO-DISPOSE TAXES

Description: Taxes on hard-to-dispose items that contribute heavily to solid waste disposal problems, such as new or used tires and lead acid batteries, paint and solvent containers, and used oil. They can be assessed at a flat rate per item, or as a percentage of the value of the item. When collected at the time of purchase, they represent a type of green product tax . If collected at the time of disposal, they are like solid waste disposal fees (see **Section 7, Deposit Refund Systems**).

Actual Use: These taxes now are used extensively by States and, for some items, as part of local government recycling and disposal programs. For example, Arkansas charges $1.50 for each tire sold at retail and $10.00 for each car battery purchased if customer does not bring the old battery in exchange. Florida charges $1 for each new tire or battery purchased, while North Carolina assesses 1% of the value of each tire purchased. Other States imposing taxes for new tires include Kansas, Nebraska, Oklahoma, Oregon and Wisconsin. Montana charges a junk vehicle fee. The Federal Highway Trust Fund has a graduated tire tax ranging from $.15/lb. to $10.50/lb. Used oil taxes are imposed in Florida and a number of other States.

Potential Use: The tax base could be broadened by imposing charges on any items contributing to landfill problems, such as fast food packaging materials, cars, mattresses and household appliances, or on goods that have no recyclable content, such as disposable diapers. Some taxes might be refundable analogous to deposits on recyclable or reusable material like glass bottles. Florida's Advance Disposal Fee exempts any item, such as aluminum and steel cans, 50% of which is recycled Statewide. Sales taxes also could be imposed on surrogates for landfill use, such as plastic garbage bags, garbage and trash cans, and recycling bins.

Advantages: Hard-to-dispose taxes are easily understood by the public and provide a direct cost/benefit relationship when proceeds are used for local landfill, incinerator or recycling costs. As in Arkansas and Florida, taxes could be structured to encourage recycling of reusable commodities and encourage recycling markets, although this leads to an unpredictable and diminished revenues.

Limitations: It may be administratively difficult to separate out specific commodities for taxation. Double taxation, if such products are also taxed as green products, may be hard to avoid and would heighten inequities. If taxes are collected at the point of disposal and not sale, collection may be administratively expensive, and illegal dumping may result. This may also be the case if local and/or State fees are not uniform. Revenue generation and the environmental goal of encouraging conservation/recycling are very much in conflict for these taxes.

References for Further Information: Natural Resources Defense Council Reprint, "Life and Taxes", *The Amicus Journal,* 1995; New York State Department of Environmental Conservation, *Survey of State Funding for Solid Waste Management*, June 1991.

HOTEL AND RESORT TAXES

Description: Hotel and Resort taxes are taxes on room accommodations, or occupancy, charged either per night or as a percentage of the room rate.

Actual Use: Both State and local governments have used hotel and resort taxes for various purposes, including alleviating the burden placed by tourism on the local culture. For example, Dade County, North Carolina used occupancy tax proceeds to finance a new wastewater treatment facility made necessary by the influx of seasonal tourists. Delaware dedicates 12.5% of its public accommodation tax to beach preservation. Flagstaff, Arizona has a 0.2%, 10-year "BBB" tax on hotels, bars and restaurant charges dedicated to beautification, greenways and trails, as well as marketing and economic development. Montana allows resort communities to charge up to a 3% tax on goods and services sold to tourists, such as hotels, campsites, restaurants and skiing. Designated Colorado communities have a similar tax.

Potential Use: Occupancy taxes could be used to finance operating costs for State and local parks and natural areas that attract tourists. Revenues could also finance operating and capital costs for local services. For example, occupancy tax revenues could finance capital costs for the expansion of a solid waste facility to accommodate the influx of tourists to a particular area.

Advantages: Occupancy taxes spread the costs of maintaining State and local natural areas and government services to those who benefit from them. Because non-local and out-of-State residents must pay such taxes, they are equitable and maintain a good cost/benefit relationship.

Limitations: Since the demand for hotel space is relatively elastic, a price increase could reduce occupancy rates, and ultimately tax revenues, particularly if a city or county unilaterally imposes an occupancy tax higher than in surrounding areas. If no occupancy tax currently exists, collecting occupancy information for hotels, motels, and rental units each month could involve high administrative costs. Revenue yield might be low, unpredictable, and lack stability.

Reference for Further Information: The Trust for Public Land, *Greensense: Financing Parks and Recreation*, Phyllis Myers, Editor, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

INSURANCE PREMIUM TAXES

Description: These are taxes that are levied on insurance premiums, or on the gross receipts of insurance businesses.

Actual Use: Insurance taxes are used by State governments, and they are frequently dedicated to pension funds.

Potential Use: The proceeds from premium taxes could be dedicated based on the type of insurance. For example, proceeds from taxes on auto insurance could fund air pollution control and proceeds from taxes on homeowner's insurance could fund operating costs of water and wastewater facilities. The concept could be expanded to include liability insurance required in some States for projects falling under Superfund laws, and revenues collected could be used to provide funds for abandoned facilities or very small facilities for which liability insurance is very costly.

Advantages: Taxes on insurance have a large tax base and thus could yield a significant and predictable revenue stream at a modest cost. For mandatory types of insurance, such as auto liability and residential fire insurance, and flood plain insurance in some States, revenues will be extremely dependable.

Limitations: Insurance premiums are not a good proxy for assessing the environmental risk of an individual. For example, an air pollution control tax based on auto insurance premiums would capture less revenue from older cars that have lower premiums, but generally higher emissions levels, than from newer cars. Thus, inequity may result and lower the cost/benefit relationship. Collection by governments may prove difficult, and administrative tracking will be costly.

Reference for Further Information: Apogee Research, Inc., *Preliminary Review of Alternative Superfund Financing Schemes* (unpublished report), July 1991.

LITTER CONTROL TAXES

Description: Litter taxes are taxes on the sale of virgin newsprint and paper products, such as newspapers and magazines, that contribute significantly to solid waste volume. When assessed as sales taxes, litter taxes represent a type of green product sales tax.

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Actual Use: The imposition of litter control taxes is generally limited to State governments. At least three States use them extensively, dedicating tax receipts to solid waste programs. For example, Nebraska's litter tax funds solid waste facilities. The tax can also be structured to encourage conservation. To encourage newspapers to use recycled newsprint, North Carolina taxes virgin newsprint and dedicates the proceeds to a solid waste management trust fund. Washington spends its litter control tax revenues on recycling and waste reduction programs.

Potential Use: These taxes could be used to finance any solid waste disposal costs, including facility operation and maintenance, and State recycling facility and program costs. The concept could be extended to cover sales catalogs which would broaden the tax base and capture revenue from out-of-State businesses.

Advantages: Litter control taxes might encourage consumers to buy less of the taxed commodity, reducing the total amount of solid waste but also lowering revenue yield. The cost/benefit ratio can be strong depending on program dedication. If taxes are collected directly from producers, they can be relatively easy to collect and administer. However, equity is reduced if the tax is then passed on to the consumer.

Limitations: Virgin newsprint and other paper taxes would face political opposition from the paper industry or other affected industries.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995.

MARINE AND AVIATION TAXES

Description: These are taxes on fuel used by commercial or recreational boats and inland barges, and aviation fuel, tickets and airport service charges. Marine and aviation fuel taxes could be implemented either by removing the exemptions from highway fuel (gasoline) taxes which exists in many States, or by instituting fuel tax surcharges at different rates.

Actual Use: Marine fuel taxes are generally limited to State governments. In Alaska, the tax funds water and harbor facilities. In Iowa, marine fuel revenues are dedicated to Department of Natural Resources programs. California, Maryland, Oregon and Washington also use these tax receipts to fund coastal and estuary programs. Aviation fuel and airline ticket taxes (almost 8.5% of ticket value) are assessed by the federal government, and many localities impose airport service fees to all passengers of $1-$3.00, which are initially collected by commercial airlines and were authorized under the 1990 Federal Aviation Safety and Expansion Act, as well as aircraft landing fees. The federal government also imposes a port tax (about .04% of cargo value) and an inland barge fuel tax (slightly over 10 cents/gallon).

Potential Use: Marine tax revenues could be used to fund research on water pollution, particularly on near coastal and estuarine water quality, and marine fuel spill prevention and response. Sewage pump-out stations for recreational boaters also is a likely area for funding. Taxes on the use of public docking and pump-out facilities could be used as a surrogate tax and, if flat tax rates were employed, might be easier to collect. State or localities could assess surcharges on federal air ticket, port, and inland barge fuel taxes, although these charges already are quite steep. Aviation-related taxes, often used for aircraft safety and airport renovation, could be used to support air pollution and noise abatement programs as well, or safe disposal of de-icing fluids.

Advantages: Implementing marine fuel taxes assures equity among all gasoline and diesel fuel users, although current marine fuel rates generally are lower than highway gasoline taxes. Having boat and barge users pay some of the costs of pollution control associated with their activities creates a solid cost/benefit relationship, as well as heightening awareness of potential water quality problems. Aviation-related taxes can be a particularly good source of local revenue and, similar to rental car taxes, help ensure equity by including out-of-State travelers..

Limitations: If a State does not already tax marine and aviation fuel, it could be costly to set up a collection and accounting system. The same is true for local mooring and port taxes. The revenue stream probably will fluctuate depending on a number of factors, including weather and travel conditions, and the current cost of air travel.

Reference for Further Information: Governor's Panel Financing *Alternatives for Maryland's Tributaries Strategies,* Maryland University Sea Grant College, August 1995.

MISCELLANEOUS SELECTIVE SALES TAXES

Description: Any product or specific activity could be subject to a State or local sales and use tax, provided authority is granted by the State to a locality and voter approval is gained. Local sales tax may exist in States where no general sales and use tax exist. The taxes described are termed miscellaneous because they exist sporadically, and are designed to leverage or replace other monies.

Actual Use: In recent years States and localities have been active and extremely creative in imposing taxes on individual products or uses. Most taxes are relatively small and limited by a specific time period, or to raise a specific dollar amount, and then are ended. Sales taxes are designed to meet unique sales characteristics of individual communities, and may or may not be environmentally-or green product-related, although the relationship may attract more public support. Examples of local sales taxes are the BBB (bed, board and booze") tax in Flagstaff, Arizona which raises $2 million a year for open space and trails and is leveraged by Arizona's lottery and federal transportation funds. Virginia Beach uses a tax (sales and service) on cellular phones to make regular payments on farmland development rights, with Treasury bond proceeds guaranteeing the end balloon payments. Texas taxes sales of sporting goods (the only State to do so), imposed to replace declining cigarette tax revenues supporting parks and recreation initiatives. Minnesota has a $2 per ton birdseed manufacturing tax, and Florida places a penny per pound assessment on Everglades-grown sugar dedicated to the Everglades Trust Fund which leverages additional government dollars.

Potential Use: Any locality may seek to establish a selective sales tax for a special, and widely supported environmental purpose, such as parks, recreation, open space, nature centers and trails, environmental education, and the like. Fees could be designed in concert with federal, State and private sector programs to leverage additional monies. They could be particularly useful in States where there is no general sales and use tax.

Advantages: The advantages of selective sales tax pertain to their specificity and short-term nature, thus yielding direct environmental benefits and heightened public environmental awareness without becoming too burdensome. The leveraging potential, which may be spelled out at the outset, adds to revenues and increases popularity. Selective sales taxes may be less regressive than general sales taxes since in most cases a "higher end" product or activity is taxed, and non-resident's pay as well.
Limitations: There may be voter revolt against special taxes, particularly if the project is not properly presented, widely supported, or completed on a timely basis. Voter approval is not assured. Revenue raising potential may be small, unstable or unpredictable if there are ways to avoid the tax.
Reference for Further Information: The Trust for Public Land, *Green Sense: Financing Parks and Conservation*, Phyllis Myers, Editor, San Francisco, CA, Telephone: 800-714-LAND, **http://www.tpl.org/tpl**.

MOTOR FUEL TAXES

Description: Motor fuel taxes, commonly termed gasoline taxes, are imposed on fuel used in all vehicles, except off-road vehicles. Fuel includes both gasoline and diesel fuel. Off-road vehicles typically are exempted because taxes normally are used to fund highway improvements.

Actual Use: All 50 States have gasoline taxes, typically dedicated to highway construction and maintenance and sometimes to local streets and roads. Three States, Illinois, Massachusetts and Nevada currently earmark between .3% and 1.7% to environmental programs. California earmarks $10 million annually for open space acquisition by the State Land Trust Funds. At least four States, New Mexico, Oklahoma, Vermont and Washington, add a surcharge to existing taxes for environmental spending. Total gasoline rates generally range from 8 cents to 25 cents per gallon, with surcharges being considerably less, typically under one cent per gallon. The Federal Leaking Underground Storage Tank Trust Fund is financed by a 0.1 cent per gallon federal excise tax on motor fuels. The Federal Highway Trust Fund is supported in large part by federal gasoline taxes, which have averaged 5 cents/gallon less than similar State taxes.

Potential Use: Because of the impact of auto emissions on air quality, revenues from the tax could be used to fund air pollution research or control. State motor fuel taxes could also be used to finance underground storage tank clean-up, such as done in Illinois.

Advantages: Because of the broad tax base, high tax rates, and somewhat inelastic demand, gasoline tax receipts have the potential to raise considerable revenues, although surcharges would raise less and may be less predictable and stable. Gasoline taxes exhibit a strong cost benefit relationship when dedicated to environmental programs. Since all States already have motor fuel taxes, collecting surcharges would involve few additional administrative costs.

Limitations: Many States have historically dedicated motor fuel taxes to highway funds, and in some States, revenues from these taxes may be constitutionally or statutorily dedicated to these uses. Since the tax also increasingly is used to raise general revenues at the State level, and is the largest source of earmarked road money, it is one of the slowest growing taxes levied by States because gasoline consumption per mile has declined and most States use flat per gallon rates. Thus, it may be difficult to legislate new earmarking and surcharges, and safeguard dedication to environmental programs. Gasoline taxes are notoriously regressive and, thus, inequitable.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995.

MOTOR VEHICLE SALES AND REGISTRATION TAXES

Description: Motor vehicle taxes are placed on the sale of new and used vehicles by States. They may include recurrent (annual or biennial) registration of existing vehicles, or registration fees may be used as a surrogate for a sales tax. Some States incorporate emission-based fees, including for inspection, into this tax.

Actual Use: All 50 States charge substantial taxes for the purchase of motor vehicles, as well as ongoing registration and licensing taxes. Generally, the funds raised go to pay for highway-related State programs. At least three States, including Washington, now dedicate a small portion of these types of taxes to air pollution control programs. Washington also charges a tax surcharge on campers and trailers. Illinois raised $5 million in 1997 from the title transfer tax to fund State and local trails and bike paths.

Potential Use: Earmarking a portion of these taxes or tax surcharge receipts to air pollution control is an obvious choice. Revenues could be dedicated to solid waste programs as well. The sale or transfer of recreational vehicles and heavy trucks could be taxed at higher rates.

Advantages: These taxes clearly demonstrate the relationship between motor vehicles and air pollution. They could be graduated depending on the air pollution control devices on the vehicles, e.g., older cars with less efficient catalytic converters could be assessed more, as well as on the specific use of the vehicle.

Disadvantages: Many States have statutory or constitutional limits on the earmarking of these funds, such as with motor fuel taxes. These taxes are probably not a large revenue source because of this fact and the limited tax base. Collectability may be made more difficult if special surcharges are added, and auto individual dealers may be able to avoid new charges.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking States Taxes*, Denver, CO, April 1995.

PETROLEUM PRODUCTS TAXES

Description: Petroleum products taxes could cover a wide range of products derived from the refining of crude oil. Excluding motor vehicle gasoline, diesel and aviation fuel, special petroleum products might include plant condensate, lubrication oils, crankcase motor oil, kerosene, benzol, residual fuel, petroleum coke, asphalt base, and liquefied or liquefiable gases such as butane, ethane and propane. Derivatives such as petroleum jellies, cleaning solvents and asphalt paving might also be included. Petroleum product taxes present a type of specialized green product fee, and could be imposed as a percent of production, wholesale or retail value. Fuel oils and gas for residential and commercial heating represent an energy tax, discussed earlier along with electric energy surcharges.

Actual Use: These taxes increasingly are used by States, and dedicated to underground storage tank projects and oil spill or conservation funds. Tennessee earmarks 28.6% of its special petroleum product tax to an underground storage tank fund, Oklahoma dedicates its excise taxes on petroleum and gas to oil conservation and well plugging. Washington and Maine dedicate all tax receipts to oil spill response and insurance. Nebraska taxes petroleum wholesalers directly. Hawaii earmarks a petroleum product barrel import tax for groundwater protection. New Hampshire taxes all stored oil. The Federal Superfund Trust Fund was supported in part by a tax of about 10 cents per barrel of domestic and imported crude oil, and by petroleum chemical feedstock and other taxes. The Federal Highway Trust Fund is supported by taxes on the sale of ethanol/methanol from petroleum.

Potential Use: Petroleum product taxes could be used by any State to fund oil leakage or spill projects. Because of existing federal taxes, equity would be enhanced by avoiding federally-taxed products. The list could be expanded to certain plastics and synthetic rubbers.

Advantages: The cost/benefit relationship between the pollution source and cleanup or prevention is attractive and easily understood, especially with oil production and storage. Demand is inelastic.
Limitations: Administration and collection could become complicated. It might be difficult to single out products for taxation in the first place, as the potential list is long, especially if expanded to plastics. There is potential overlap with other taxes, particularly federal excise taxes supporting the above-mentioned federal trust funds, and there are many possible collection points. Foreign imports would have to be accounted for in some fashion, or substantial substitution might occur. It might prove easier to charge certain petroleum producers directly. The petroleum and chemical industries are already heavily taxed, resulting in increased inequity of impacts.
References for Further Information: U.S. Department of Transportation, Federal Highway Administration, *Financing Federal-Aid Highways*, May 1992; Congressional Research Service Report, *Summaries of Environmental Laws Administered by the Environmental Protection Agency*, January 1993.

REAL ESTATE TRANSFER TAXES

Description: Real estate transfer taxes are charged to the buyer and/or seller of real property at the time of sale, based on a percentage of sale value of the property, a flat deed registration tax, or a combination. A similar tax is called a documentary stamp tax.

Actual Use: Real estate transfer taxes are widely, and increasingly, used by both State and local governments. At the State level the tax has funded trust funds for environmental infrastructure and open space/natural lands acquisition, park rangers salaries park maintenance, watershed and wetlands protection, and conservation easements, and has been a dedicated source of payment for revenue bonds for these projects. For example, Florida and Tennessee finance land acquisition and habitat and wetlands restoration with taxes of 7.5 cents/$100 and 28 cents/$1000, respectively. Montana finances State park programs, and Washington uses tax revenues to fund wastewater and drinking water capital facility construction. Illinois raised $13 million in 1997 to fund a grant program for local open space acquisition. New York raised $120 million in the same year dedicated to pay a portion of the interest on its 1996 mega-environmental bond act, particularly for watershed protection projects, and North Carolina and Vermont similarly fund their environmental bonds. Maryland's 0.5% tax funds Chesapeake Bay protection. At the county and city level, Cape Cod voters approved (and subsequently eliminated) a 1% tax to finance a land bank for open space and trails, but not before ten other Massachusetts town asked the State to approve similar local real estate transfer taxes. Colorado communities use the tax for open space and conservation initiatives.

Potential Use: Real estate transfer taxes could be dedicated to any environmental, land-oriented program, or mitigation of the impacts of rapid land development such as agricultural and urban runoff. The tax could be extended to new construction.

Advantages: Real estate transfer taxes based on property values generate a large amount of revenue at relatively low rates. Most governments already have system in place for recording sales which ease collection, Tax rates can be graduated to increase equitability and a close cost/benefit relationship. The tax leverages additional monies when it is used as a source of bond repayment. Dedication of revenues to popular land protection programs enhances the acceptability of the tax.

Limitations: Revenues depend on the level of real estate market activity, which is subject to wide and frequent fluctuations based on economic conditions/interest rates, weather and other factors. Application of the tax may have inequitable distribution effects, and increased housing costs in some areas. Localities must seek State legislative approval to impose the tax, which has not been easy.
Reference for Further Information: The Trust for Public Land, G*reenSense: Financing Parks and Conservation*, Phyllis Myers, Editor, Spring and Fall 1997, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

RENTAL CAR TAXES

Description: These types of taxes are levied on rental cars, or on the gross receipts of rental car businesses.

Actual Use: Like hotel taxes, many States and counties use the revenues raised from rental car taxes for beatification and tourism promotion purposes.

Potential Use: Because of the impact of rental care use on air quality, a share of rental car taxes could be dedicated by State and local governments to fund the operating costs of air pollution control programs. Alternatively, these taxes could be used to finance water quality activities in lake and seaside area frequented by tourists, or to mitigate any environmental problem exacerbated by increased tourism.

Advantages: Rental car taxes could help spread the costs of maintaining air and water quality to those who benefit from it, including out-of-county and out-of-State visitors, which would enhance equity considerations. These taxes might also serve as an incentive for the visitors to use public transportation, reducing mobile source air emissions but producing a corresponding drop in revenues.

Limitations: At the local level, imposing a new tax or increasing an existing tax could cause a city or county to lose rental car business to other, lower-tax jurisdictions. Similarly, State business as a whole could be affected negatively, particularly in areas bordering other States. The revenue yields from rental car taxes may be small and unpredictable.

Reference for Further Information: Virginia Department of Revenue, Richmond VA, has information on Virginia's rental car tax.

TOBACCO TAXES

Description: These taxes are levied on tobacco, based on either volume or as a percentage of value.

Actual Use: All 50 States have tobacco taxes on cigarettes, pipe and chewing tobacco, and cigars. However, tax receipts typically are used for general revenue purposes. At least three States, Idaho, Minnesota and Washington, dedicate a portion of tobacco taxes to water quality, including wastewater treatment facility construction, generating $3 million, $16 million, and $31 million, respectively. California dedicates tobacco taxes to health programs including indoor air protection.

Potential Use: Tobacco taxes could be used to finance programs for agricultural non-point source control, such as offering economic incentives to encourage tobacco farmers to use best management practices. In States without tobacco farming, the tax could be dedicated to indoor air pollution or solid waste programs.

Advantages: Since demand for tobacco still is not too elastic, small earmarks or tax increases in the form of an environmental surcharge might yield significant revenues. However, larger tax increases might produce a behavioral response of declining smoking having personal as well as environmental benefits. Some States, such as Texas have experienced a large decline in revenues from cigarette sales. Texas now uses a sporting goods sales tax to compensate for lost revenues, generating $32 million annually.

Limitations: Tobacco taxes are highly regressive, and the failure of states to dedicate tax revenues to the environment results in a weak cost/benefit ratio. The tobacco industry is in turmoil due to litigation and recent congressional debate, and a further decline in smoking may ensue. A dedication of revenues to the environment may not send the right signal for anti-smoking campaigns.

Reference for Further Information: U.S. EPA, Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issue*s, Syracuse University, June 1996. The Trust for Public Land, *Green Sense: Financing Parks and Conservation*, Phyllis Myers, editor, Spring 1995, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

WATERCRAFT SALES TAXES

Description: Watercraft taxes may be imposed on boat sales and/or boat title registration and transfer.

Actual Use: Although State use of these taxes is widespread, tax receipts generally are not dedicated to the environment. Currently, Maryland, Virginia, North Carolina and Washington earmark the tax to marine estuarine programs.

Potential Use: A tax or a percentage of a tax on boat sales could be specifically dedicated to water pollution control or marine fuel spill cleanup because of the impact of recreational boating on water.

Advantages: Boat owners would pay some of the costs of maintaining water quality, which creates a strong cost/benefit ratio.

Limitations: Revenue yield is modest and unstable, as general economic conditions and other factors influence boat sales. Even in Virginia and Maryland, with strong estuary protection programs, boat sales taxes are actually several percentage points lower than the standard sales and use tax due to the strength of the boat-building and fishing lobbies.

Reference for Further Information: Governor's Panel, *Financing Alternatives for Maryland's Tributary Strategies*, Maryland University Sea Grant College, August 1995; Virginia Department of Taxation, *1990 Virginia Sales and Use Tax Expenditure Study*, Richmond, VA, 1992.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR SELECTIVE SALES TAXES

Criteria/ Selective Sales Tax	**Actual Use**	**Revenue Size**	**Revenue Stability**	**Admini-strative Ease**	**Equity**	**Cost/ Benefit Ratio**	**Environ-mental Benefit**
Alcoholic Beverage	Low	High	Mod.	High	Low	Low	Mod..
Amusement	Low	Low	Low	Mod.	Mod.	Mod.	Low
Energy	Low	High	Mod. High	Mod.	Low	Mod.	Mod
Fertilizer/ Pesticide	Low	Mod.	Mod.	Mod.	Mod	Mod.	High
***Green Product**	Mod.	Mod.-High	Mod.	Mod.	Low	Mod.	High
***Hard-to-Dispose**	High	Low	Low	Mod.	Low	High	High
***Hotel and Resort**	High	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
Insurance Premium	Low	Low-Mod.	Mod.	Low	Low	Low	Low
Litter Control	Low	Low-Mod.	Mod.	Mod.	Low-Mod.	Mod.	High
Marine & Aviation	Mod.	Mod.	Low	Low	Mod.	High	Mod.
Misc. Select. Sales	Low	Low	Low	Mod.	Mod.	Low	Low

COMPARISON MATRIX continued

Criteria/ Selective Sales Tax	Actual Use	Revenue Size	Revenue Stability	Admini-strative Ease	Equity	Cost/ Benefit Ratio	Environ-mental Benefit
***Motor Fuel**	Mod.	High	Mod.	High	Low	High	High
Motor Vehicles Sales & Registrtion	Low	Low	Low	Mod.	Mod.	Low	Low
Petroleum Products	Low.	Low-Mod.	Mod.	Mod.	Mod.	Mod.	Mod.
***Real Estate Transfer**	High	Mod.-High	Mod.	High	Mod.	Mod.	High
Rental Car	Low	Low	Low	Low	Mod.	Mod.	Low
***Tobacco**	Low	High	Mod.	High	Low	Mod.-High	High
Watercraft Sales	Low	Low	Low	Mod.	Mod.	High	High

High - High use (over 25 States/many localities); criteria score high (many advantages); High revenue yield (over $25 million annual State yield currently)

Mod.- Moderate Use (10-25 States/many localities); criteria score in medium range; Moderate revenue yield

Low - Low or rare usage; many limitations and one or more major implementation problems exist; Low revenue yield

* Star indicates best rated mechanisms

1.B. FEES

1.B. FEES

Description: A fee is a financial charge for services rendered, or activity undertaken. Fees can be based on the service provided or benefit received, including potential negative environmental impacts. Fees establish direct links between the demand for services and the cost of providing them. For example, local utilities require customers to pay for the cost of providing water and wastewater services. State permitting fees are used to finance the cost of processing permit applications, e.g., NPDES permit fees. Inspection/monitoring fees cover the inspection and certification of equipment, facilities, or employees for environmental compliance. Park and recreation fees finance oversight of the general public's environmentally-sensitive activities.

Most of the fees described in this section are dedicated to State or local program budgets, i.e., to cover personnel and other operating costs, as opposed to be capital-generating fees for environmental facility construction. Fees that provide environmentally-related services, e.g., laboratory testing fees, are termed **administrative service fees**. Fees that allow a certain activity to be undertaken that may impact the environment negatively, e.g., septage disposal, are called **activity fees**. User fees that pay for utility services are called **utility fees**. Utility fees often are applied to capital cost recovery.

Revenue yield from administrative service and activity fees is typically modest, although the utility fee revenue stream may be significant. Another characteristic of administrative service and activity fees is that many are one-time charges, i.e., imposed only once, or imposed periodically at the time of demand. In contrast, most utility user fees are recurrent charges imposed at regular intervals.

Advantages: Well-structured fees can be an equitable means of matching program costs to program beneficiaries. In many cases, instituting a fee essentially eliminates a subsidy for a government service, freeing up general revenues that could be used to fund other environmental programs. Thus by definition, many fees have a very close cost/benefit relationship and, if graduated rate structures are used, are highly equitable. Because they are imposed at the time of service, or through regular billing, they may be relatively easy to collect. Behavioral shifts do not reduce revenue potential as much as with sales taxes. In many States, service and activity fees can be set administratively, meaning that no legislative action is required to impose them. Utility fees, in contrast, typically require public approval or, in the case of privately-owned facilities, are subject to State regulation.

Limitations: Since they are targeted to a specific service or group, fees have a narrower revenue base than most taxes. In many States, administrative service fees cannot exceed the costs of providing a service, although there is often wide latitude in defining what constitutes service. Thus while equitable, revenue potential is sharply curtailed. Some States have expressed increasing concern over a growing resistance to both administrative and activity fees among industry groups, as well as the general public. Likewise,

voters frequently defeat passage of even modest utility user fee increases.

Summary: Increased use of administrative service and activity fees by States and localities is a well-established trend in environmental program funding, encouraged by the federal government. Most administrative service and activity fees are used solely to offset government operating costs, and, although equitable and directly related to costs and benefits, they provide only a modest revenue yield. In an effort to raise more revenue and cover more budgetary costs, the number of State fees has proliferated in recent years, and may have led to some public backlash.

Utility user fees have been in existence for a long time, particularly for public water supply, and employ increasingly sophisticated rate structures and billing mechanisms. In recent years, the policy goal of "full-cost pricing" appears to be more widely recognized and may provide capital cost-recovery in addition to ongoing operating costs. However, utility charges may be fashioned to accommodate other policy goals such as economic development, suburban growth, and privatization

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LIST OF FEES
(In Alphabetical Order)

1. Access Rights
2. Bond Issuance Fees
*3. Connection Fees
4. Construction Fees
5. Franchise Fees
*6. Inspection/Monitoring/Testing Fees
*7. Licensing and Recreational Fees
*8. Local Aquifer Protection Fees
*9. Local Water/Wastewater Utility User Fees
*10. Permitting Fees
11. Product Registration Fees
12. Professional Certification Fees
13. Septic System Impact Fees
*14. Solid Waste Disposal Fees (Tipping Fees, Septage/Sludge Fees)
*15. State Public Water Supply Withdrawal Fees
*16. Tolls
17. Transporter Fees
18. Water Rights Application Fees
19. Well Permit/Pumping Fees

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete

ACCESS RIGHTS

Description: Access rights or capacity credits are local fees, imposed on a one-time basis, on new users requesting access, and old users requiring increases in capacity, to water and sewer facilities. In exchange for payment, applicants are guaranteed future access to a contracted amount of system capacity that has been reserved for their use.

Actual Use: Many local communities sell water and sewer access rights to finance expansion or upgrades of water and sewer systems. Water and sewer access rights programs are structured in many different ways. The basic principle is that for a set, one-time charge, the purchaser of a water and/or sewer access right is guaranteed the right to connect to the system in the future. This is important since possible sewer moratoriums at a later date would prohibit new residential or commercial development.

Potential Use: The principle of capacity rights to a new facility could be broadly applied. For example, developers, industry and households could be required to purchase access rights to solid waste management removal or treatment services, and revenues from the sale of the rights could be used to finance construction of future solid waste management facilities.

Advantages: New users of government services pay for the expansion, which helps facilitate governmental planning and provides needed capital in advance of construction. The cost/benefit relationship thus is very direct.

Limitations: It may be difficult to sell credits in advance, particularly if a community is not experiencing a high demand for new housing and commercial activity, or seeks to attract economic development. It is difficult to measure what the needed capacity might be for some new users, which reduces the likelihood of equity. Revenue may be neither large nor stable.

Reference for Further Information: U.S. EPA, *Alternative Financing Mechanisms*, August 1992

BOND ISSUANCE FEES

Description: These are fees that might be imposed by States or localities on environmentally-related bonds in addition to normal bond "cost of issuance" fees. Fees are assessed as a percentage of total bond value, including general obligation bonds, special obligation bonds, appropriation-backed bonds, revenue and private-activity bonds, and other bond instruments. Any environmental infrastructure construction bond could be included.

Actual Use: New York State collects a bond issuance fee on all State bonds. Rates move on a sliding scale, i.e., 7 basis points (.07% of value) for bonds under $1 million, 14 basis points/$1-5 million, 21% basis points/$5-10 million, 28 basis points/$10-20 million, and 35 basis points for bonds over $20 million. Revenues in New York are collected by the bond issuance agency or authority but rebated to the State budget general fund.

Potential Use: Bond issuance fees could be used by any level of government or special authority issuing bonds, and dedicated to its general infrastructure capital account. Fee proceeds might also be used to lower specific debt reserve fund requirements, pay for bond insurance or legal fees, make hardship, no-interest loans. For the State Revolving Fund (SRF) program, these fees cannot be used to cover SRF loan administrative cost due to recent EPA restrictions on using more than 4% of SRF capitalization grants for administrative purposes but fees from other bonds could also be used.

Advantages: Such fees could provide a significant revenue stream when bond issuing amounts are high. If graduated fee schedules are established, fees are equitable and provide a good cost/benefit ratio depending on subsequent environmental dedication.

Limitations: The revenue stream is unpredictable since it depends on the local demand for financing, which is influenced by environmental compliance issues, local debt capacity, and readiness to proceed with construction. State private-activity revenue bond issuance fees may result in a lack of State competitiveness with local industrial development authorities, which already may have lower bond issuance costs. Fees add to the carrying costs of local agencies undertaking infrastructure work, and thus may seem counter-productive. The administrative costs of collecting fees on very small bonds may be prohibitive. In New York, bond issuance fees were implemented to support the State budget, not to fund environmental projects.

Reference for Further Information: New York State, *Public Authorities Law*, Chapter 166 Section 240, "Cost Recovery on the Issuance of Certain Bonds", effective August 1, 1991.

CONNECTION FEES

Description: Connection fees are charged to property owners at the time they hook up to or connect with an existing municipal utility.

Actual Use: Connection fees generally are limited to local governments. Hook-up fees and new connection fees are frequently charged by localities in residential developments for water supply services and wastewater collection systems, as well as for some industry and businesses. At least three States use drinking water connection fees at present, including Massachusetts, New Jersey and Nevada, with fees averaging several hundred dollars for each residential hook-up.

Potential Use: Many local governments charge low or no connection fees, particularly for businesses, essentially subsidizing the cost from general revenues. Charging connection fees would allow these general revenues to be used for other purposes.

Advantages: Beneficiaries pay for the extension of local government services to them, rather than having current users subsidize new customers, which increases equity. Connection fees could be a strong revenue source with a very direct cost/benefit relationship.

Limitations: In contrast to access rights, connection fees provide capital only after, not in advance of the need created by new residents. Thus, local governments will need some alternative means of raising capital before new residents actually move in, or necessary expansion may not be completed in time. It is difficult to provide high equity with connection fees, since water and sewer use may be the same regardless of the economic status of the household hooking up to the central system. Connection fees may provide some disincentive for suburban or rural households to join the central systems, thus possibly exacerbating environmental problems.

Reference for Further Information: Raftelis Environmental Consulting Group (now Raftelis Financial Consulting, PA), *1998 National Water and Wastewater Rate Survey*, Charlotte, NC, 1998, Telephone: 704-373-1199; Raftelis, George, *Comprehensive Guide to Water and Wastewater Finance and Pricing*, second edition, CRC Press/Lewis Publishers, 1993; National Conference of State Legislatures, *States as Water Quality Financiers*, Denver, CO, May 1991.

CONSTRUCTION FEES

Description: Construction fees are charged by States and localities on a one-time basis for the right to construct an environmental facility, most notably for drinking water and underground storage tanks. While they may be used to cover the costs of reviewing construction plans, environmental impact reviews or permit issuance, such fees are meant in part to serve as a measure of future environmental impact.

Actual Use: At least seven States charge drinking water facility construction fees, including Arkansas, Florida, Illinois, Missouri, New Jersey, Ohio, and Pennsylvania, in most cases in connection with a construction permit. Florida's fees range from $50 to $1000; New Jersey's vary between $100 and $12,000; Illinois structures its fee rate on the depth of the water main extensions; Pennsylvania uses a flat fee structure of $750 per project. New Jersey and Florida also use flat-rate underground storage tank construction permit fees of $50-$100 per tank which, given the large number of tanks, generates close to $2 million annually in each State.

Potential Use: Fees could be used to cover expenses related to any future environmental problem, especially those related to private sector activity. For example, some small, privately-owned drinking water facilities provided by developers in new residential areas, often result in problems as developers abandon or turn facilities over to the public. Private underground storage tanks, landfills, and mines similarly may be abandoned or improperly maintained. Annual operating fees also could be charged by States. Currently, New Jersey and Oklahoma levy annual operating fees on investor-owned drinking water systems.

Advantages: Construction fees ensure that States or localities can recover some costs relating to future environmental compliance, resulting from poor management or other problems, such as closing landfills or fixing underground leaks in accordance with new regulations.

Limitations: Fees may be difficult to collect up-front from the private sector. Revenue yields may be modest and sporadic.

Reference for Further Information: U.S. EPA, *An Overview of Existing State Alternative Financing Programs: Financing Drinking Water System Capital Needs in the 1990's*, Office of Water, May 1992; National Conference of State Legislators (NCSL), *States as Water Quality Financiers*, Denver, CO, May 1991.

FRANCHISE FEES

Description: Franchise fees can impose on any private activity that must purchase a franchise to operate a commercial business. Typically, the new private business purchases a franchise to market a parent company's goods or services, using its name, in a particular territory. In this instance, fee would be imposed by a State or local government on the new business, and could be dedicated to an environment program.

Actual Use: Several States, as well as the federal government, are experimenting with franchise fees on the private sector, primarily in parks and other public lands. States and localities are using franchise fees for private businesses selling products in publicly-owned parks, for example, T-shirts, hats, toys, or food products bearing the name of the park, or food and beverage concession fees. Private parking lots in parks have been subject to franchise fees. Fee for such businesses are onetime, but the public entity also may collect a portion of annual profits. New York City's Central Park charged a $1 million fee for Disney's production of "Pocahontas" in the Park. Market-driven "profit centers" operating on leased parklands which pay State and local franchise fees include fees on selling Olympic-type corporate sponsorships, building and operating sports and entertainment centers piers and bumper boat rides, restaurants and the like. Franchise fees may be imposed directly on selected private businesses, for example, Florida uses a franchise fee on electric companies, dedicating revenues to parks and recreation.

Potential Use: While franchises in parks are becoming more commonplace and innovative, franchise fees on any new businesses unrelated to parks could be expanded.

Advantages: The benefits of franchise fees are not only financial, but for parks they can enhance land uses which pay for themselves. The market linking of public and private sector goals leverages revenues, such as additional private contributions, and enhances future funding opportunities.

Limitations: A major concern for non-park business franchising is that it may discourage new development and commercial concerns. Equity and the cost/benefit relationship is questionable if fees are placed on non-environmentally related businesses and if dedication of revenues is not sustained.

Reference for Further Information: Garvin, Alexander, *The American City: What Works, What Doesn't*, McGraw, New York, 1995; Souder, Jon and Fairfax, Sally, *State Trust Lands: History Management, and Sustainable Use*, University of Kansas Press, 1996; The Trust for Public Land, *GreenSense: Financing Parks and Conservation*, Phyllis Myers, editor, San Francisco, CA, Autumn, 1996, *(*"Nouveau Park Capitalism"), Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

INSPECTION/MONITORING/TESTING FEES

Description: These fees pertain to the ongoing inspection and monitoring of operators or outputs of facilities which have an impact on the environment, to confirm that equipment or discharges meet applicable standards. This may be part of ongoing permit enforcement, but not actual facility permitting. Outputs, or discharges, of facilities must be laboratory tested according to regulatory requirements.

Actual Use: Most State and local governments charge regular inspection/monitoring/testing fees. In a single year, New York collected almost $3 million in private company reimbursements for State monitoring. Examples of State programs charging fees include:

- Emissions inspection fees (widespread use);
- Laboratory inspection fees (widespread use);
- Drinking water monitoring fees (New Jersey and Iowa charge for monitoring, but this is still relatively rare);
- Septic tank inspection fees (Wisconsin, Maine and Massachusetts);
- Laboratory testing fees (widespread use); and
- Underground storage tank inspection fees (Wisconsin).

Potential Use: Many States have privatized water supply, solid waste disposal, and vehicle emissions inspection facilities. Governmental monitoring of these and other privatized facilities could be financed by facility inspection/monitoring fees. Septic tank inspection fees could finance the creation of septic tank management districts to monitor and prevent spillage. Laboratory fee revenues could pay for oversight of privatized environmental monitoring facilities, such as private air emissions inspection contractors.

Advantages: In addition to revenues, inspection/monitoring/testing fees provide a way of tracking which facilities are engaged in environmentally-sensitive activities. They may provide environmental incentives to stay in compliance, as this might reduce the need for inspection. Septic tank fees capture revenues from households not connected to municipal sewers, but impacting on water quality due to septic tank leakage.

Limitations: Fee revenue may be modest in most cases. If set too high, fees may discourage private companies from owning and operating environmental facilities. It may be difficult to identify and track owners of some facilities, especially residential septic tanks.

Reference for Further Information: U.S. EPA, Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996.

LICENSING AND RECREATIONAL FEES

Description: These are fees charged to individuals for the privilege of engaging in activities, and can be distinguished from professional certification fees by the lack of training required. Examples include the privilege of mooring boats on State waters, using State parks and campgrounds, or for hunting, boating or fishing licenses. Vanity licensing plate purchases are discussed in **Section 8: Tools To Pay For Community-Based Environmental Protection**.

Actual Use: Both State and local governments use these fees for a variety of purposes. Some local governments charge mooring fees at municipal marinas run by port authorities, where the income pays for port operations. Delaware charges a $1.50/square foot for private docks on State waters to fund its boat safety program. North Carolina supports marine research with salt water fishing license fees. State and local governments charge fees for park use. Arizona's park user fees produce over $1 million/year for park operating costs. Fees for fishing and boating licenses also are charged by most States. The federal government uses park and recreational fees extensively for its facilities.

Potential Use: License revenues could cover the costs of environmental programs associated with the activity. For example, a share of boat license fee or mooring fee revenues could be used to finance pump-out facilities for boat toilets. Park fees can be levied wherever State or local governments incur costs for the provision of recreation services. Camping fees can be used to fund improved access to and maintain camping sites.

Advantages: These fees can cover expenses for public use of environmentally sensitive areas, and still represent an untapped revenue source in many States. Charging fees would allow State general revenues to be used for other purposes. Most license fees have built in enforcement mechanism, since the licensing government can revoke the privilege granted with the license if fees are not paid, and provide a direct cost/benefit relationship. Equity is enhanced because out-of-State tourists must pay for the environmental impacts of increased tourism in an area.

Limitations: It may be difficult to institute recreational fees if use of State waters and parks has historically been free. Such fees may have a disproportionate impact on lower-income segments of the population who may have few other low cost recreational opportunities. Since they generally apply only to a limited population, most license fees have a small revenue base, and it may be difficult to raise significant revenues if fees are set at low levels.

Reference for Further Information: National Conference of State Legislators (NCSL), *States as Water Quality Financiers*, Denver, CO, May 1991.

LOCAL AQUIFER PROTECTION FEES

Description: Local aquifer protection fees are similar to the concept underlying State water supply withdrawal fees and State direct water use fees in that they are special charges on local water utility fees and private well users. By labeling them as "aquifer" or "water conservation" fees, localities are attempting to highlight the effects on aquifer health of groundwater withdrawals (see also later in this section, **State Public Water Supply Fees** and **Well Permit/Pumping Fees**, and in **Section 1C, State Direct Water Use Fees**).

Actual Use: Local use of special aquifer fees is recent, and sporadic. For example, in Spokane, Washington all residents are charged a $15 annual "aquifer protection fee". In Dade County, Florida water utility users pay a 3% surcharge on all water bills. In Providence, Rhode Island all water customers pay a surcharge of 1 cent/100 gallons of regular water bills. The property tax has been dedicated to open space, watershed and wetlands protection.

Potential Use: Similar to "quality of life" or "conservation taxes" added on to local general sales taxes or property taxes, aquifer fees are designed to heighten public awareness of environmental consequences, as well as raise revenue. Revenues could also be used for a range of drinking water treatment needs, infrastructure, septic and well rehabilitation, purchase of development rights and other land protection projects.

Advantages: Advantages in terms of environmental benefits and public awareness are clear. If revenues are dedicated to specific projects, the cost/benefit relationship is strong. Revenues could be designed to leverage additional dollars. Water conservation may or may not result, depending on fee structure.

Limitations: Fees are regressive when imposed as flat fees. They require voter approval, which means that the dedicated uses of fees must be popular, and fees must be affordable. While revenue yield may be predictable, unless structured to influence water conservation, it most likely is relatively small. There may be a public backlash against fee surcharges.

Reference for Further Information: The Trust for Public Land, *Protecting the Source: Land Conservation and the Future of America's Drinking Water*, Richard Stapleton, author, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

LOCAL WATER/WASTEWATER UTILITY USER FEES

Description: User fees are charged regularly to all customers, industrial, commercial and residential, for the receipt of utility services such as public drinking water, wastewater treatment, and stormwater drainage. Customers receiving services are connected to central publicly or privately-owned facilities.
Traditionally, utility user fees have been levied for water and sewer. Water meters and pollutant tracking have led to sophisticated billing procedures and rate structures based on volume and toxicity. Utilities can assess rates to cover their full costs including capital cost recovery ("full cost pricing"), or subsidize the costs of service with general revenues. Rates are usually measured in cents per 1,000 gallons of water withdrawn (drinking water) or discharged (wastewater) into the treatment system.

Actual Use: User fees are limited to localities. (State utility fees will be discussed later). Most localities issue water and sewer bills once or twice a year. Average annual water/wastewaster rates per household range from $170 to $230, based on a family of 2.64 persons using 104 - 140 gallons of water per day, at $.14/1000 gallons. Costs of smaller communities may be two to three times more due to lack of economies of scale. Costs for stormwater drainage pipes and discharge are less universal and more often subsidized.

Potential Use: A basic issue in rate-setting is the link between capital and operating budgets, and the rate base and structure. Medium-to-large communities review user fees regularly in relation to budget needs, and make decisions about using full-cost pricing procedures to cover more than current operating costs. They also make policy decisions to subsidize classes of users (e.g., the elderly or disadvantaged, urban residents), and on using ascending block rates for conservation and other purposes, or descending block rates to promote economic development. Industrial waste stream toxicity is also accounted for. Another issue is if non-users of the facilities should pay for the environmental benefit to surrounding clean lakes and streams.

Advantages: Utility user fees provide services that most residents require. Thus, the fee base is large enough to provide a strong and reliable revenue stream at relatively low, equitable rates. Graduated rate structures would improve equity. Small rate increases can raise significant revenues while imposing a fairly small increased burden on households. The cost/benefit relationship is clear and rational rate-setting increases public awareness of the true cost and environmental benefits of water-related services.

Limitations: Many localities are accustomed to subsidized rates. This makes rate increases difficult. In small or economically disadvantaged communities, reliance on user fees for operations and maintenance as well as capital financing may be unaffordable, based on fiscal indicators such as median household income and community debt capacity. Smaller communities may not have the management and other tools needed to reevaluate their rate structures with many complex policy choice issues.

Reference for Further Information: Raftelis Environmental Consulting Group (now Raftelis Financial Consulting, PA), *1998 National Water and Wastewater Rate Survey,* Charlotte, NC, 1998, Telephone: 704-373-1199; Raftelis, George, *Comprehensive Guide to Water and Wastewater Finance and Pricing,* second edition, CRC Press/Lewis Publishers, 1993; Association of Metropolitan Sewerage Agencies, *Wastewater User Fee Survey,* Washington, DC, 1994.

PERMITTING FEES

Description: Permitting fees are charged for processing costs associated with the initial permitting, and periodic permit renewal, of municipal and industrial facilities, or a location such as a wetland. Such fees typically are dedicated to operating budgets. Fees may be graduated depending on whether a facility is classified as major and minor, and depending on the toxicity of the waste stream.

Actual Use: Both State and local governments increasingly have used permitting fees to cover the administrative costs associated with permit writing and issuance. This has been supported by the federal government, and is required for air emissions under Title V of the 1990 Clean Air Act and in several Clean Water bills. Wetlands fees are one of the major sources of funding for State wetlands programs. Local industrial pretreatment permit fees are a source of revenue for local governments. Examples of administrative fees and rates include: **State NPDES Permit Fees** (over 30 States); **State Drinking Water Permit Fees** (over 35 States); **State Air Emissions Source Permit Fees** (all States); **State Hazardous and Solid Waste Permit Fees** (at least 20 States); **State Wetlands Permit Application Fees** (at least 20 States); **State Groundwater Certification Fees** (used by a growing number of States); **State Underground Storage Tank Fees** (at least 10 States); and **Local Industrial Pretreatment Permit Fees** (many localities, but only where program is delegated).

Potential Use: State and local governments could institute permit application fees, as well as periodic permit renewal fees, for any environmentally-related facility or location. Wetlands permits could be expanded to all areas classified as valuable natural habitat. Permit fees could be more widely used for solid waste, sludge disposal, underground storage tanks and stormwater discharge.

Advantages: Permit fees may cover some or all of the start-up costs related to the permit application process. Graduated fee rates based on toxicity, such as used for effluent-based permits in Louisiana, New Jersey and Louisiana, and hazardous waste permit fees in New York, could produce a significant revenue stream for State capital-generation for environmental infrastructure. Graduated rates may encourage pollution reduction, and wetland permits promote conservation and give State governments advance information on wetland building plans. Fee collection is relatively straightforward.

Limitations: Revenue yield in most States is modest, and somewhat unpredictable. Flat rates may be inequitable, particularly for minor facilities which constitute the majority of permittees, and facility owners may not see a close cost/benefit relationship. Tracking ownership and development of wetlands and underground storage tanks can be administratively complex and expensive.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Summary of State Wastewater Discharge Permit Fees*, Denver, CO, December 1993; NCSL, *Alternative Funding Mechanisms for State Drinking Water Programs*, Denver, CO, July 1993; U.S. EPA, Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996.

PRODUCT REGISTRATION FEES

Description: Such fees are charged for the registration of particular products that have some environmental impact, most notably fertilizers and pesticides.

Actual Use: These fees generally are limited to States, as well as the federal government. A number of States have fertilizer registration programs, some of which finance nonpoint source pollution control. In Kansas, for example, a State $1.70/ton fertilizer fee is charged, with $0.30/ton dedicated to the fertilizer program and $1.40/ton dedicated to the State Water Plan which funds conservation, water quality and water use projects throughout the State. Other States with dedicated pesticide registration fees include Iowa, Minnesota (which raises $3 million annually), New York and Wisconsin.

Potential Use: Any (especially new ones), environmentally-sensitive product, with complex, non-organic components, could be required to be registered and pay a fee, for example, water treatment compounds, carpet treating chemicals, and the like.

Advantages: If set high enough, and proportional to anticipated product production, such fees may increase the awareness of harmful products on the part of consumers and influence the conservation of use or product substitution. Fee revenues dedicated to research and data collection on new, environmentally-degrading products would result in a good cost/benefit relationship. These fees also may enable the placement of limits or regulations on the sale of such products, and at least provide advance notice of new products coming on the market.

Limitations: Product registration fees will face opposition from the producers, who may already have gone through complicated and expensive federal approval processes, such as the Food and Drug Administration certification.

Reference for Further Information: The Fertilizer Institute, *Summary of State Fertilizer Laws*, 1988; National Council of States Legislators (NCSL), *States as Water Quality Financiers*, Denver, CO, May 1991; U.S. EPA, *Prevention, Pesticides and Toxic Substances: Pesticides Industry Sales and Usage: 1992 and 1993 Market Estimates*, June 1994.

PROFESSIONAL CERTIFICATION FEES

Description: Certification fees are charged to companies or individuals for the privilege of engaging in an activity, at one time only or on a periodic renewal basis. Fees can fund training for professionals in environmentally sensitive industries and confirm that environmental officials are certified.

Actual Use: Both State and local governments use license fees to finance administrative costs associated with related government agencies. Examples include:

-Pesticide Dealer and Applicators' License Fees;

-Business License Fees, including for engineering/construction/testing;

-Laboratory Certification Fees; and
-Occupational License Fees, e.g.,:

-Solid and Hazardous Waste Facility Operator and Transporter Certification

-Water and Wastewater Operator, and Training Program, Certification
-Underground Storage Tank Installer Certification Fees; and
-Septic Tank Installer Certification Fees.

Potential Use: Professional certification revenues could cover the costs of environmental programs associated with the industry or activity. In addition to plan review and processing costs, fees could be used to pay for public notification required under regulations. Fees for the professional engineering and construction industry could be used to mitigate the urban runoff problems associated with construction.

Advantages: Like licensing fees, most professional certification fees have a built-in enforcement mechanism, in that a privilege granted through certification can be revoked if fees are not paid. Construction certification fees give States advance warning of construction and the funds to analyze the extent of the potential impact. Laboratory, operator, and testing certification fees for businesses allow the State to maintain some oversight of particularly privately-owned and/or operated environmental facilities.

Limitations: Certification fees may have a disproportionate impact on small businesses, who may not be able to afford operator or construction certification. Since these fees generally apply only to a limited population, most professional certification fees have small revenue base in most cases, and it may be difficult to raise significant revenues. Fees dedicated to potential future impacts do not have a high cost/benefit relationship.

Reference for Further Information: U.S. EPA, Office of Underground Storage Tanks, *Funding Options for State and Local Governments,* August, 1988; National Governor's Association, *Funding Environmental Programs: An Examination of Alternatives*, Washington, D.C., 1989.

SEPTIC SYSTEM IMPACT FEES

Description: Septic system impact fees are levied on the construction of new septic fields, including residential septic systems. They are designed as a type of impact fee, which measures the future negative impact of poorly maintained septic systems.

Actual Use: At least five States impose septic system fees on all new development, including Maryland, Oregon, North Dakota, Virginia and Wisconsin.

Potential Use: Since individual septic fields and tanks are largely unregulated at the State and local level, the impact fee could be used as a surrogate for permit issuance. Fee rates could be graduated to reflect the possible negative damage to water quality resulting from improper maintenance by owners, for example, fee rates could be higher if septic system were located near lakes or groundwater sources of community drinking water. Fees could heighten awareness of the importance of preventative maintenance.

Limitations: Fees could be difficult to collect from individual property owners, and administratively complex and expensive to track. Revenue yield is modest and unpredictable. The cost/benefit relationship may not be apparent for individual homeowners.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Financing Clean Water,* Groundwater Pamphlet, Denver, CO, June 1991.

SOLID WASTE DISPOSAL FEES
(Tipping Fees, Septage/Sludge Fees)

Description: State and local disposal fees are levied for the volume and sometimes toxicity of solid waste (e.g., garbage and trash) disposed of at local management and/or treatment facilities, such as landfills and incinerators. This type of fee also may be used for septage, pumped from septic tanks and treated at local wastewater treatment plants, and municipal water and wastewater treatment sludge which is sub-surface disposed and land applied.

Actual Use: Most localities use "tipping fees" to cover solid waste disposal and treatment costs at municipal (or private) landfills and incinerators. Tipping fees range from $50 to $200 or more per ton depending on waste content and local demand for service, as well as the availability and location of management/treatment facilities. While tipping fees represent one type of service unit cost for solid waste, they are not strictly user fees, and extraneous factors such as geography and public/private competition influence the level of charges. Many localities also charge fees per bin or bag of garbage and recycling. Connecticut, New Jersey, and Vermont, levy an added fee per ton of solid waste disposed, ranging from 1-4 dollars. Septage/sludge disposal fees used by several States are used to finance sludge management programs. Colorado, Indiana, Oklahoma, and Wisconsin, charge for industrial sludge disposal.

Potential Use: Local tipping fees could be adjusted to reflect more precisely the true cost of service, as opposed to demand/supply issues. Disposal fees could be more broadly applied, especially for septage, for revenue purposes but also as an incentive mechanism to encourage conservation and beneficial use. States could become more active in assessing solid waste fees.

Advantages: Fees could be set to encourage waste reduction. Currently, solid waste disposers do not bear the full costs of disposal, which encourages the option of disposal as opposed to recycling. Tipping fees should remove this disincentive if set at appropriate levels. There is a clear cost/benefit ratio, and revenue yield could be significant and predictable. Fees from local garbage and trash haulers should be relatively easy to collect.

Limitations: Fees are not necessarily equitable if not directly related to the true cost of service. However, competition between the public and private sectors, and lack of available landfill space has undercut efforts at fair pricing. Fees based solely on volume may not adequately capture revenue from the most toxic and least degradable waste, which is difficult to measure. Very high fees could encourage illegal dumping of wastes. If significant waste reduction occurs in response to fees, revenues will similarly decline. Also, since many wastewater treatment plants subsidize the cost of beneficial sludge uses, e.g., land spreading, fees may be counter-productive.

Reference for Further Information: New York State Department of Environmental Conservation, *Survey of State Funding for Solid Waste Management Programs,* June 1991.

STATE PUBLIC WATER SUPPLY WITHDRAWAL FEES

Description: In addition to local user fees, these State fees are assessed on public and private utilities, or their industrial, commercial and residential customers, that supply or are supplied consumptive water via central facilities. They may be levied as a percentage of local water utility sales to local customers, or volume of water treated or produced. They may also be levied as a surcharge or add-on to local water bills. Imposed as a flat rate and assessed in cents/per 1,000 gallons of water sold or withdrawn, they can be collected by States directly or, in the case of customer surcharges, by local utilities which rebate the surcharge to the States. They differ from the **Direct Water Use Charges** used by States discussed in **Section 1.C.: Special Charges**.

Actual Use: State public water supply withdrawal fees increasingly have been used by States primarily to cover program costs as opposed to infrastructure capital-generation. Presently, at least 11 States have imposed such fees in the form of drinking water production, sales or service fees, ranging from $.03 - $.07 per 1,000 gallons, including Arizona, California, Delaware, New Jersey, New Mexico, Montana, Oklahoma, Rhode Island, Texas, Vermont and Virginia. A similar fee was defeated recently in New York and is being considered in Pennsylvania and Florida.

Potential Use: An increase of $.07/1000 gallons to water customer bills yields $1 billion annually nationwide, based on 1990 consumption rates. Thus, there is significant potential for States to use this fee to generate revenue for capital infrastructure funds for water and wastewater, such as SRFs.

Advantages: This type of broad-based, low level fee can yield high revenue. The regressiveness of flat fees can be avoided by using graduated fee rate structures or percentages. The cost/benefit relationship is strong, and such fees may increase awareness of the true cost of water services. The demand for public water, particularly by industry, is relatively inelastic, resulting in stable and predictable revenues.

Disadvantages: The revenue base of the public water supply withdrawal fee is severely limited, however, because water supplied by utilities resents only a very slim portion (about 12%) of all water use in this country. The majority of water use results from direct withdrawals from ground and surface water sources by industry, mining, hydroelectricity and agriculture, and private wells. Legislation would be required, and local utilities may resist rebating fees to the State level. New fees would be unpopular with water utilities, both public and private, which oppose incremental increases in user fees because of lack of community support particularly when fees are redistributed to other localities. New State administrative procedures would be required to collect fees from utilities.

Reference for Further Information: U.S. EPA, Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996, discusses the fee in-depth; Clean Water Council, *America's Environmental Infrastructure: A Water and Wastewater Investment Study*, Washington, D. C., December 1990; U.S. EPA, Environmental Finance Advisory Board (EFAB), *Public Sector Options to Finance Environmental Facilities*, March 1992.

TOLLS

Description: Tolls are fees charged for auto and truck passage on thruways, highways, roads and bridges to offset the expenses of new construction, operation and maintenance. Tolls are also imposed on boats (e.g., docking fees) and airplanes (e.g., landing fees). Tolls may be used to pay for environmental mitigation resulting from negative construction impacts (see **Section 8, Mitigation Lands and Banking**).

Actual Use: Tolls have been used in all States for transportation budgets, and may constitute the State matching share to federal construction grants. Localities use tolls as well. Traditionally, highway construction has included some environmental component, for example, preventing nonpoint construction sites. Recently, some States and localities have gained approval to establish new tolls specifically to pay for environmental mitigation of problems caused by construction and use. A good example is Alligator Alley (Interstate 75) bisecting the sensitive Florida Everglades ecosystem, and the construction of which has been a major contributor to altered water flows. An estimated $4.5 million annually of Alligator Alley toll revenues is being used for environmental mitigation projects, including land purchases in the Everglades and Florida Bay. Toll dedication was agreed to by both the federal and State Government, and is part of a $685 million, 20-year initiative.

Potential Use: The potential uses of a toll revenues for environmental projects is large. After meeting federal and state requirements for operation, maintenance and new construction needs, dedication of a portion of toll receipts can pay for both on-and-off site environmental mitigation. Highway tolls could be to correct problems caused by use of de-icing salts. Harbor-related tolls could be used to correct water degradation. Airport landing fees could be used to collect and treat propylene glycol contaminated runoff from aircraft deicing operation.

Advantages: Considerable environmental benefits can be achieved, and public awareness of environmental degradation from highway construction and use may heightened. Toll collection systems already exist, and non-residents can help bear some of the cost of environmental mitigation. Revenues could be substantial.

Limitations: Tolls already are fairly steep, and regressive. It may be difficult to increase tolls, and ensure environmental dedication over time, particularly given competing demands from highly popular transportation projects.

Reference for Further Information: The Trust for Public Land, *GreenSense: Financing Parks and Conservation*, Phyllis Myers, editor, San Francisco, CA, Spring 1996, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**. See the Transportation Equity Act for the 21st Century (TEA-21), June 1998, for a description of what tolls may be applied to a State's matching share to federal grants.

TRANSPORTER FEES

Description: These are fees charged to a company or individual, most notably for hauling and transporting solid or hazardous wastes, septage, petroleum products, and radioactive waste. Fees can be charged on volume of waste transferred, or as a flat charge per hauler.

Actual Use: Hazardous waste transporter fees are used to pay the cost of hazardous waste monitoring and spill response in many States, including Arkansas, California, Connecticut, Indiana, Massachusetts, New Jersey, Ohio, Oklahoma, Pennsylvania, Washington, and Wisconsin, often generating several million dollars per year. A few other States assess septage hauling fees, such as Michigan, Texas and Wisconsin. Washington levies a flat fee of over $1,000 for petroleum transporters, which must be renewed periodically. Maine charges significant fees for hauling radioactive waste.

Potential Use: Revenues could be used to make road improvements on routes traveled by hazardous waste transporters with safety considerations in mind. Graduated rate structures based on the anticipated distance of transporting could be imposed. Revenues also could finance the operating costs of State monitoring programs for hazardous waste transport.

Advantages: The fees could capture revenue from transporters who are responsible for some waste spillage. Graduated fee structures based on distance might provide incentives for disposal at nearby sites. Charging septage haulers may be the only way to include private septic systems in fee systems.

Limitations: The revenue base is very small and thus the revenue yield is low. Depending on the structure of the fee, it may have a disproportionate impact on small businesses, particularly in the septage hauling business. The fee might encourage polluters to dump wastes illegally to avoid the costs of transportation to a legal site.

Reference for Further Information: National Conference of State Legislators (NCSL), *States as Water Quality Financiers*, Denver, CO, May 1991.

WATER RIGHTS APPLICATION FEES

Description: State water rights application fees are imposed on municipal, agricultural and industrial users seeking to establish legal boundaries for diversion of water for direct use. Fees could be charged at one time for new permits, or on a recurrent basis.

Actual Use: Most western water rights States use these fees. Rates in California, Montana and Nevada are quite steep and recurrent.

Potential Use: This fee concept could be extended to include dam registration fees (Maine) and stream encroachment fees (New Jersey), or any other water diversions. Also, some western localities have sold water rights "futures" such as Escondido, California. California has considered using income tax credits to encourage donations of water rights.

Advantages: Water rights application fees could be used to cover the administrative costs of processing State permits, but also could be designed as an activity impact fee, in recognition of potential negative impacts on surface or groundwater. If a State does not use direct water use fees (discussed subsequently), water rights application fees provide some equity in the imposition of all water withdrawal and use fees.

Demand for water in the west may still be relatively inelastic, but such fees might heighten awareness of the importance of water as a vital and potentially nonrenewable natural resource. Collecting fees for water rights permits may be relatively straightforward in the first instance, but there may be strong opposition to recurrent fees in western States which traditionally have regarded water as free.

Limitations: Unless fee rates are steep or levied on a recurrent basis, revenue yield is small and unpredictable. The cost/benefit relationship is not immediately obvious to permittees. Water rights fees may not be applicable to many eastern riparian rights States.

Reference for Further Information: University of Florida College of Law, *Nationwide Survey of State Water User Fee Legislation*, February 1992.

WELL PERMIT/PUMPING FEES

Description: Like septic field/tank installation and septage disposal, private wells represent a largely unregulated area. Licenses for private well drilling and pumping are imposed in a number of States and localities as a "surrogate" fee for actual water use/withdrawal which may negatively impact the water table. Such fees are also discussed earlier in this section under **Local Aquifer Protection Fees**.

Actual Use: At least seven States levy well drilling license, permit and/or pump fees, including Alabama, Arizona (including industrial well users), Montana, New Jersey, South Dakota, Virginia, and Wisconsin (which labels its fee a "compensation" fee for well water use).

Potential Use: Well fees could be used much more widely.

Advantages: Well fees could heighten awareness of the value of water and the potential negative impacts on the underground water table. Well fees provide equity for all water withdrawal and user fees, since private wells are currently a loophole in the system of regulation and user fees.

Disadvantages: It may be extremely difficult to administer such fees, particularly at the State level. There exist few notification mechanisms for individual drilling activity, especially for private homeowners. States such as New York have attempted to institute such fees, but found them too difficult to collect. Revenue yield would be very small and unpredictable. As with all "surrogate" impact-related fees, the benefit is not immediately evident to fee payers.

Reference for Reference for Further Information: U.S. EPA, Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues,* Syracuse University, June 1996.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR FEES

Criteria/ Fee	**Actual Use**	**Revenue Size**	**Revenue Stability**	**Admini-strative Ease**	**Equity**	**Cost/ Benefit Ratio**	**Environ-mental Benefits**
Access Rights	Mod.	Low-Mod.	Mod.	Mod.	High	High	High
Bond Issuance	Low	Mod.	Mod.	High	High	Mod.	Low
***Connection**	High	Mod.	Mod.	High	Mod.	High	High
Construc-tion	Mod.	Low	Low	Mod.	Mod.	Mod.	Low
Franchise	High	Mod.-High	Mod.-High	High	High	Mod.	High
***Inspection/ Monitor/ Testing**	High	Low	High	High	Mod.	High	Mod.
***Licensing & Recreational**	High	Mod.	Mod.	High	High.	High	Mod.
Local Aquifer Protection	Low	Low	Mod.	Mod.	High	High	High
***Local Water /Wastewater Utility User**	High	High	High	High	Low-Mod.	High	Mod.
***Permitting**	High	Low-Mod.	High	High	Mod.	High	High
Product Registration	Low	Low	Low	High	Mod.	Mod.	Mod.

COMPARISON MATRIX (continued)

Criteria/ Fee	Actual Use	Revenue Size	Revenue Stability	Administrative Ease	Equity	Cost/ Benefit Ratio	Environmental Benefits
Professional Certification	High	Low	Low	Mod.	Mod.	Low	Mod.
Septic System Impact	Low	Low	Low	Low	High	Mod.	High
***Solid Waste Disposal**	High	High	High	High	Low	High	High
***State Public Water Supply Withdrawal**	Mod.	High	High	Mod.	Mod.	Mod.	Low
Tolls	Mod.	High	Mod.	High	Mod.	High	High
Transporter	Low	Low	Mod.	Low	Mod.	Mod.	Mod.
Water Rights	High	Low	Low-Mod.	Mod.	High	Low	Low
Well Permit/ Pumping	Low	Low	Low	Low	High	Mod.	Mod.

High - High use (over 25 States/many localities); criteria score high (many advantages); High revenue yield

Mod.- Moderate Use (10-25 States/many localities); criteria score in medium range; Moderate Revenue yield

Low - Low or rare usage; many limitations; low revenue

* Star indicates best rated mechanisms

1.C. SPECIAL CHARGES

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Description: Special charges are charges not placed on the general population or upon the sale of a particular good or service, such as many taxes, and they are not fees for administrative services. Rather, special charges apply to specific types of transactions or activities which impose unique environmental or development costs. A special charge may be similar in some features to either a fee or a tax and, in fact, hitherto have been termed fees or taxes somewhat interchangeably. For example, effluent charges are sometimes called effluent fees or effluent taxes, and mineral severance charges are sometimes referred to as fees and sometimes as taxes.

As discussed here, special charges are a way of assigning clean-up costs to whomever or whatever caused, or may cause, pollution, hence the term "polluter pays". In this sense, special charges may most closely resemble activity impact fees. However, special charges have the characteristic of being recurrent or ongoing, instead of being attached to a permit application, renewal, licensing or certification. Unlike activity fees, special charges typically are quite steep or costly.

Nine special charges are examined in this section, including effluent and emission fees, feedstock and waste-end special industry fees, direct water use fees, other severance fees (e.g., coal, gas, oil, timber), special assessments and exactions, and development impact fees. Unlike many other fees and taxes, which could be used by many different levels of government or even simultaneously by more than one level, special charges often are limited to one particular level of government depending on the characteristics of the charge imposed or other revenue and environmental goals. For example, the federal government may not have the authority or ability to implement direct water use fees (i.e., self-supplied surface and groundwater withdrawal) on cultural and constitutional grounds. Exaction and impact fees typically are local in nature. Multi-governmental effluent, emission, feedstock and waste-end fees would result in double counting, or double taxation, and would be prohibitive from an economic cost and equity standpoint.

Advantages: Special charges can be designed to generate revenues for any environmental and development-related activity or impact. As described in this report, special charges could have a very significant and highly predictable revenue potential, which in recent years is beginning to be tapped and dedicated to the environment. The potentially large size of the revenue stream means that such charges could be highly suitable for dedication to State and local environmental infrastructure capital construction funds, as opposed to general operating budgets. Some, such as effluent or emission charges and hazardous waste production charges, can be highly equitable when rate structures are based on volume and toxicity of the waste stream. The "polluter pays" principle helps to ensure that some cost/benefit relationship is achieved. Most special charges create strong environmental incentives, i.e., tax avoidance may cause a reduction in pollution behavior. Thus, some charges are frequently discussed in the current literature as

market-oriented incentives.

Limitations: The polluter pays principle is not widely accepted for many special charges, such as effluent fees which typically would be opposed by municipal and industrial dischargers. Some long-standing fees remain largely undedicated to environmental programs, such as severance taxes, which typically are dedicated to State general budgets. Since many charges are novel, and extremely complex to design and administer (e.g., effluent and feedstock fees), policy makers should exercise special care in designing new systems. Collection may cause difficulties, as there may be no existing, related collection bureaucracy and procedures on which to build. Thus, brand new systems may have to be established. Administrative complexities in establishing graduated rate structures, and lack of uniformity across States, means that some charges (e.g., emissions fees) may be best suited to the federal as opposed to State government.

Many States and local governments may not have enabling legislation to levy special charges. Both enabling legislation and specific legislation may be very difficult to achieve, which has been the case with the federal government and many States up until now.

Summary: Special charges, with which State and local government continue to experiment, are increasing in importance. The potential for yielding revenue streams significant enough for environmental infrastructure capital-generation is high. However, except for the more traditional charges such as exactions and severance taxes, the use of special charges by all levels of government is still low. This is in part due to strong industry opposition and because of the very large legal and administrative complexities involved in instituting equitable programs and rate structures, e.g., for effluent, emissions, and feedstock taxes. Special charges offer significant opportunity for States and localities to explore in the future.

LIST OF SPECIAL CHARGES
(In Alphabetical Order)

*1. Direct Water Use Charges
2. Effluent Charges
3. Emission Charges
*4. Exactions
5. Feedstock Charges
*6. Impact Fees
*7. Severance Taxes
*8. Special Assessments
9. Waste-End Charges (Special Industry Fees)

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

DIRECT WATER USE CHARGES

Description: Water drawn directly from the surface or ground, by industry, mining, hydroelectric firms, agriculture and households using private wells represents 88% of all water use. Water supplied and treated by public or privately-owned utilities constitutes the other 12%. Direct water use charges are fees placed on self-supplied water, typically measured in terms of cents/per 1000 gallons of water or acreage, by States and sub-State water districts.

Actual Use: At least 10 State and large sub-State water districts impose a recurrent direct water use fee on users that "self-supply" their own water. These include Arizona, Arkansas, Connecticut, Kansas, New Mexico, New Jersey, North and South Dakota, and several sub-State districts in Texas. New York proposed direct charges, but they were defeated in the legislature. Florida and Pennsylvania are considering such legislation. Two States exempt agricultural uses, and in two States the hydroelectric industry has challenged the fees based on temporary non-depletive use. Most States exempt withdrawals below a certain amount, so private wells are typically excluded.

Potential Use: Direct water use fees could be implemented by any State, or they could be implemented on a sub-State or even municipal basis. Inclusion of private wells would be difficult to administer, which is why well drilling fees often are used as surrogate fees.

Advantages: Direct water use charges create equity for all users, i.e., most withdrawals from public and private utilities are charged regular user fees, but this is the clear minority of all water use. These charges can raise significant revenue. One study estimates that $1 billion could be raised yearly if all States charged an industrial use fee of about 2 cents/per 1000 gallons. Revenues would be stable, since demand for water especially among non-residential users is relatively inelastic. Fees would have little economic impact on small users, who typically are exempted. The cost/benefit ratio is fair in that some revenues would be dedicated to both point and nonpoint source projects.

Limitations: Self-supplied water is hard to estimate on a State-by-State basis because water allocation and regulation (or lack thereof) differs by State. The amount of water returned to the water table, and the degree it is polluted, also vary widely, and are hard to measure. For example, agricultural returns may be contaminated (fertilizer/pesticides), but hydroelectric uses may be relatively clean. This decreases the equity of direct charges substantially. Many water users, especially agricultural, object vigorously to the imposition of these charges.

Reference for Further Information: U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996; U.S. Department of Interior, *Estimated Use of Water in the United States in 1990*, Solely, Pierce and Perlman, 1993; University of Florida College of Law, "Nationwide Survey of State Water User Fee Legislation", February 1992; Congressional Research Service (CRS), *Funding Water Quality Programs: Revenues for a National Water Investment Corporation*, July 1992.

EFFLUENT CHARGES

Description: Effluent charges are those placed on the volume and toxicity of pollutants discharged into the water by industry and/or municipal wastewater treatment plants.

Actual Use: While effluent fees have been considered by the federal government and a number of States, only three States, New Jersey, Louisiana, and Washington, have true effluent fee programs. A true effluent fee program exists when fees are based on measuring the pollutants discharged into water from point sources, including both quantity and quality, and not just what is allowed under NPDES limits. Annual fees in the three States are upwards of $100,000 for each "major" industrial permit, yielding from $10 to over $20 million. While these States use the fees mainly to subsidize State operating budgets, they are used widely in Europe for capital-generation.

Potential Use: Effluent fees could be used by States or the federal government, but probably not by localities. Revenue could be dedicated to infrastructure funds such as State Revolving Funds. These fees could be imposed mainly for revenue purposes but also as incentives to reduce pollution.

Advantages: Effluent fees could generate significant and reliable revenue on an annual basis. The cost/benefit ratio is satisfactory since the "polluter pays" principle exists. Fees could provide strong environmental incentives to reduce the discharge of harmful pollutants. If tied to NPDES permit issuance and renewal, fees could be collected by permit writers.

Limitations: Effluent fees are hard to design and administer due to data limitations and policy concerns. Although self-reported Toxic Release Inventory (TRI) data are used to estimate volume and toxicity, the TRI only covers major industrial toxic discharges and no standardized toxicity measures exist. Thus, it is difficult to institute graduated rate structures which characterize true effluent fee systems, and even more complex to relate discharges to receiving water quality, because waste streams vary in dilution and receiving water quality varies considerably. The inability to relate fees to specific environmental damage reduces their equity and the directness of the cost/benefit ratio. Flat-rate fees are simpler and less easily circumvented via dilution or media transfers. However, even this approach seems to impact heavily, and disproportionately, on the chemical and allied product industry and, secondarily, on the pulp and paper industry. Effluent fees are unpopular with industry and municipalities, and there is no observable trend nationwide for their increased use.

Reference for Further Information: U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, June 1996; Congressional Research Service, *Funding Water Quality Programs: Revenues for a National Water Investment Corporation*, July 1992; Research Triangle Institute, *Effluent Discharge Fees and Water Quality*, February 1993; American Petroleum Institute (API), *Effluent Fees: Present Practice and Future Potential*, Discussion Paper #075, December 1993.

EMISSION CHARGES

Description: Emission charges are levied on the volume and toxicity of pollutants emitted into the atmosphere by industry, and also municipal facilities such as power plants.

Actual Use: States already use a type of emission-based permit fee under Title V of the Clean Air Act, which requires them to charge permitted sources the equivalent of $25 per ton of regulated pollutants emitted. Since the purpose of this requirement is to help States recover the full cost of permit issuance, such fees resemble permit fees. A number of States have emission-based motor vehicle fees which are reflected in motor vehicle sales taxes and/or recurrent registration fees. In contrast, "true" emission fee systems cover a large list of toxic pollutants and sources, using graduated rate structures based on toxicity and volume, and assessing fairly steep rates. The best example is the non-vehicle acid deposition fees used in California and Wisconsin. California's Acid Deposition Program is funded by low-level fees assessed against sources that emit 1,000 tons or more of sulfur or nitrogen oxides per year, which are capped at $5 per ton of pollutant emitted, which produce almost $2 million annually.

Potential Use: Since these fees already exist in States, continued State use as opposed to a new federal system might seem desirable. However, since atmospheric pollutants cross State boundaries, as shown by acid rain issues, inter-State issues must be evaluated. States could expand the idea of emission fees to small sources that are generally exempt from Clean Air Act permits, such as dry cleaners. Because of overall volume, small sources represent a large share of total emissions. The idea could be extended to volatile compounds, ozone-depleting emissions, and indoor air emissions.

Advantages: If emission fees were raised above $25/ton, annual revenue might be enough to pay for State programs such as pollution prevention, monitoring and research, improving the link between costs and benefits. The broader the coverage, e.g., including small sources, the more equity is achieved. Environmental incentives often discussed in terms of market-based air emission trading and emission reduction, would come into play at the higher rates, although reducing fee revenues.

Limitations: States have had problems with these fees. Administrative costs have been high, and fee avoidance exists. Although sources can be required to monitor emissions, compliance and enforcement can be costly. Depending on the fee structure, it may be hard to show a polluter's contribution to atmospheric damage, e.g., differing toxicity of sulphur dioxide versus carbon dioxide. Receiving air quality also varies and critical measurements are national/international in scope. State variations may cause pollution havens. The national emission trading program has had mixed success.

Reference for Further Information: U.S. EPA, The Clear Air Act Advisory Committee, *The Clean Air Act of 1990: An Introductory Guide to Smart Implementation,* Washington, D.C., 1992; U.S. EPA, Office of Air and Radiation, State Air Emission Fee Programs, 1994; National Governor's Association (NGA), *Funding Environmental Programs: An Examination of Alternatives*, Washington, D.C., 1989.

EXACTIONS

Description: Exactions, or proffers as they are often called, may be broadly defined as money, land, construction materials, infrastructure facilities, or in-kind services provided by a private developer to a public jurisdiction. Traditional exactions typically are on-site, and have included mandatory land dedication for rights of ways, the provision of road and parking facilities, other infrastructure, and open space and parks, and cash payments in lieu of these. Exactions sometimes are termed development fees, or impact fees (but are different from the impact fees discussed subsequently).

Actual Use: Exactions are by nature limited to local governments. They have been in existence for a long time, and may be offered voluntarily or negotiated with each developer. Most localities use exactions in some form. Some localities offer competitive exactions programs that assign building permits partially based on the level of exactions offered by different developers (Napa, California).

Potential Use: Traditional use of exactions for roads and parking could be extended to cover all necessary government services required by new developments, including water, sewer and solid waste services, and stormwater drainage. Agreement as to the operation and maintenance of such facilities could be made at the same time. While not raising new revenue, the money saved by localities could then be devoted to other environmental infrastructure projects. Another application is the "in lieu of taxes" concept, whereby a municipality offers tax savings to a developer in exchange for an environmental service or facility offered or constructed by the same developer in another location.

Advantages: Developers pay the true cost of community expansion out of their direct benefit from that expansion. Thus, some equity and cost/benefit relationship is achieved, but the way some exactions are privately negotiated may leave equity issues in doubt. When exactions take the form of construction materials or facilities, having the developer do the construction may be cheaper and faster than having it done by the governmental jurisdiction. Since they can be individually negotiated, exactions allow more flexibility than fixed impact fees discussed later. The revenue collected by monetary contributions, or represented by cost-savings on facilities built, could be significant.

Limitations: Since they are individually negotiated, exactions are not considered as predictable or equitable as impact fees. Fairness may be decreased if politics enter into private negotiations. The revenue source is only as predictable as the economic conditions affecting the construction industry.

Reference for Further Information: National League of Cities (NLC), R*esearch Report on America's Cities: City Fiscal Conditi*ons in 1994, Washington D.C. July 1994.

FEEDSTOCK CHARGES

Description: Feedstock charges typically are taxes levied on the primary chemicals that produce hazardous products and, ultimately, hazardous wastes.

Actual Use: A federal tax on petrochemical feedstocks finances the Superfund Trust Fund. New Jersey has a tax on petroleum and chemical feedstocks that is used to fund hazardous waste clean-up. Florida has a tax on perchloroethylene (dry cleaning solvent). However, State use of feedstock charges has been rare. Such charges probably are not suitable for localities.

Potential Use: The use of feedstock charges has yet to be fully tested by States. For example, obvious candidates include chlorine used for disinfection processes, and chlorinated solvents, acids, and photochemicals used by industry, in addition to the federal petrochemical excise taxes.

Advantages: Because the tax base is potentially so broad, significant revenues could be raised by the imposition of charges at relatively low rates. Some of the complexities in the design of equitable rate structures based on receiving water or air quality for effluent and emission charges could be avoided because "receiving" environmental quality is not at issue here, rather simply the toxicity of the original chemical. Some cost/benefit relationship is sustained if revenues are dedicated to site remediation or other environmental projects. Environmental incentives for reduction of feedstock use or substitution of other chemicals, i.e., pollution prevention, may be achieved.

Limitations: Disadvantages are several. Sometimes product substitution is not an option, or governmental regulations require on-site remediation, e.g., chlorine used for disinfection and permit requirements for de-chlorination. Double counting, or double taxation, may be an issue when products are already taxed as green product sales, under federal law, or the industry is already charged a waste-end, effluent or emission fee. Standard toxicity measurements likewise do not exist. Information on feedstock use is not recorded on an industry-by-industry, so costly new administrative reporting and collection systems may need to be devised, which may be easily evaded. Imports must be accounted for. These factors raise administrative costs, and reduce the equity, of tax imposition. Pollution prevention goals are extremely worthwhile, and feedstock taxes may be best implemented with behavioral change as a primary goal, when product substitutes are known and product costs are similar. However, caution must be exercised to avoid the complex pitfalls of feedstock charges implemented with revenue generation in mind.

Reference for Further Information: U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues,* Syracuse University, June 1996.

IMPACT FEES

Description: Impact or development fees are one-time charges to new users of government services, to pay for the expansion of the services that they require. Some are similar to waste and sewer connection fees, but differ from developer exactions in that they are paid by a broader segment of the population. Impact fees typically are assessed when building permits or certificates of occupancy are issued.

Actual Use: Impact fees are limited to local government, and are not considered "taxes". Many localities have wide-ranging impact fee programs requiring new residents and businesses to pay set charges for police, fire, water, natural resources, and wastewater services, such as the service cost-recovery fee system in Loveland, Colorado. Parks and recreation facilities are increasingly financed by these fees. More than twenty States have impact fee laws governing local use as a revenue source, and fees are an increasingly important response to local budget problems.

Potential Use: Impact fees could be used to finance any environmental service or additions to services that increased or transient population makes necessary. For example, local governments could use impact fees to finance landfills, stormwater and flood control in addition to more traditional services. In Florida, impact fees were used as partial security for bonds issued to finance sewer improvements. Communities attracting high tourism could also expand the use of these fees to such temporary facilities. Higher fees could be assessed on development in sensitive areas, such as development in flood plains, tidelands, agricultural lands, or open space. Fees can be graduated depending on the kind of development and affordability, such as in Olathe, Kansas.

Advantages: The beneficiaries of services pay specifically for the extension of local government facilities to them, rather than being subsidized by current users. This results in enhanced equity and a close cost/benefit relationship. Impact fees cover non-subdivision projects such as condominiums and commercial developments. From a developer's perspective, impact fees may replace more unpredictable, negotiated exactions. Impact fees may help local governments to plan for growth.

Limitations: Impact fees do not provide capital much in advance of development, unless impact "rights" are sold up-front. It may be hard for localities to ascertain capital needs and thus size fees. Impact fees are criticized for deterring development and increasing new housing costs, and resulting in interjurisdictional competition. Also, communities may change their policy preferences depending on economic conditions, for example, finding a need to subsidize new development rather than the reverse. Developers may well pass on impact fees to residents.

Reference for Further Information: National League of Cities (NLC), Research Report on America's Cities, July 1994. National Conference of State Legislatures (NCSL), *The Fiscal Letter: "Impact Fees Can Alleviate Local Growing Pains"*, Denver, CO, July/August 1991.

SEVERANCE TAXES

Description: A severance tax is a charge on natural resources extracted from the land or waters of a State. Direct water withdrawal fees, discussed earlier, are a type of severance program. Other types of severance taxes include fuel/mineral taxes (based on the volume of coal, gas, oil, uranium and other minerals withdrawn), timber taxes (based on the volume of timber logged), and oyster/shellfish taxes (based on the volume or value of shellfish harvested).

Actual Use: Severance taxes on coal and gas are used by mining States generating considerable revenues. For example, Montana collects $66 million annually from its coal severance tax, and Wyoming collects $20 million annually. However, these States apply most revenues to general State budgets, dedicating only the interest on the funds to environmental protection. Other States with mineral severance taxes include Louisiana (oil), Nebraska (uranium), New Mexico (all minerals and fuels, dedicated to the protection of natural areas and endangered species), and Pennsylvania (coal). Timber taxes used in Alabama, North Carolina, Washington, and Wisconsin generally are dedicated to State forestry replenishment programs. Maryland and Georgia use revenues from shell fish taxes to fund shellfish replenishment programs and State fisheries administrative costs.

Potential Use: These taxes could be used by any State, and dedicated to activities that mitigate the environmental impacts of natural resources extraction, such as habitat restoration. Salt mining and wetland drainage could be included. Revenues could provide insurance for extraction companies.

Advantages: Severance taxes can yield significant revenues, which could be sufficient to dedicate to environmental infrastructure capital-generation. Charges are highly equitable especially when based on the current market value, not volume, of material mined or harvested. When dedicated promptly to activities that mitigate impacts, particularly near the same site, these taxes have a high cost/benefit ratio. For sensitive activities such as timber cutting, and wetland alteration, the State will be given advance notice of impending activity.

Limitations: Severance tax revenues depend on the level of extraction activity, or price of the material extracted. If the tax base or commodity price fluctuates (e.g., shellfish harvest varies yearly as do oil and gas prices), revenues may not be suitable for funding environmental costs that require stability. Some States have defeated passage of severance taxes and resisted dedication. No amount of revenue can mitigate the effects of some extraction activities, such as in the Alaskan tundra.

Reference for Further Information: U.S. EPA Report to Congress, *Alternative Funding Study: Water Quality Fees and Debt Financing Issues*, Syracuse University, 6/96; Report from the Governor's Panel, *Financing Alternatives for Maryland's Tributary Strategies*, University of Maryland Sea Grant College, 8/95; Montana Department of Natural Resources and Conservation, *Flow of Funds for the Coal Tax: FY 96-97*.

SPECIAL ASSESSMENTS

Description: Special assessments are recurrent charges levied by local jurisdictions on a sub-group of population. The sub-group receives benefits from an environmental service or improvement not enjoyed by others in the area. For example, if a community wants to finance treatment plant improvements that contribute to lake clean-up, residents with waterfront property, or residents not hooked up to the central sewerage facility but enjoying recreational benefits from clean water, could be assessed a special surcharge. When benefits accrue to residents outside the improvements area, the benefits typically must be shown through some measure, such as higher property values, increased business activity, or frequent use of recreational sites. Special assessment/ improvement districts could be used to define the geographical boundary of any environmental improvement, e.g., a sewer or stormwater management district.Where the benefit clearly is shown via higher property values, "Tax Increment Financing" (TIF) can be used. TIF generates revenue from the incremental change in property values caused by the improvement financed. After creating a special district, two sets of tax records are maintained -- one reflecting the property's value up to the time of enhancement, and a second reflecting growing assessed value after the enhancement. In some cases, governments issue tax increment bonds for revitalization projects, with the bonds being backed, in part, by the anticipated increase in property values resulting from the investment (i.e., value capture).

Actual Use: Special assessments are generally limited to local government and often barred by constitution as a State tool. While not used as much for environmental purposes as for urban redevelopment and sports facilities, water, stormwater, and wastewater treatment have become more common recently. Fast growing States like Florida and Arizona use special assessments and tax increment financing for many such projects.

Potential Use: Special assessments could be used more widely for park and other open spaces, lake and stream rehabilitation, estuary and bay protection, and even for solid waste management such as recycling and resource recovery centers. Assessments usually are recurrent charges, but the concept could cover one-time charges too. Charges could be graduated depending on ability to pay and other benefits to be obtained.

Advantages: The advantages of this tool relate to the potential revenue yield, which could be stable, and to increased equity and an improved cost/benefit relationship. Extending revenue requirements to suburban residents, who may have lower infrastructure costs and greater ability to pay, can relieve the burden on inner city residents. Asking inner city residents to pay for suburban developments may prove inequitable. Incentives recognizing the true costs of environmental services is important.

Limitations: Assessments require the ability to pass local ordinances and create special financing districts, which may require State approval, which is often difficult. They require administrative systems that may be costly to manage over time. It is not possible to achieve total equity, as there may be no ability to collect, for example, from downstream users benefitting from upstream water quality improvement. Assessments based on predictions of property value increases, and documentation of results, requires strict record-keeping and periodic reassessments which may require special management tools unavailable to communities.

Reference for Further Information: Report from The Governor's Panel, *Financing Alternatives for Maryland's Tributary Strategies*, University of Maryland Sea Grant College, August 1995.

WASTE-END CHARGES
(Special Industry Fees)

Description: These charges are applied most notably to the hazardous waste industry, and are intended to capture revenues from the potential negative impacts of that industry. Structuring the charges is complicated, and often the most simple method is followed. For example, special industry fees for hazardous waste may be assessed against waste generators, storers, treaters, or disposal facilities. Fees may be flat charges on the volume of waste produced, stored or disposed, or be based on the waste or disposal method. The number of methods used by States reflects the complexity of measuring hazardous waste, and differences in their accounting and tracking systems. For hazardous waste, waste-end charges are similar to effluent and emission charges for water and air dischargers.

Actual Use: Numerous States use these taxes to finance hazardous waste programs, including Connecticut, Indiana, Minnesota, New Jersey, and Washington. The first three assess the charge on generators, while Washington uses three separate taxes; a hazardous substance fee, a generators' fee, and a tax on the volume/toxicity of substances produced. Other kinds of industry waste-end charges are a resource recovery facility charge in Connecticut, and a petroleum wholesalers tax in Nebraska.

Potential Use: Waste-end charges might be placed on industrial solid waste as a whole, where the revenue potential is huge., e.g., a $5 per ton tax would raise over $1 billion annually nationwide. However, there is little documentation for solid waste collected and disposed of on behalf of industry. The waste-end idea could also be extended on an industry-by-industry basis. Revenues could go to special insurance funds, resource recovery projects, and brownfields redevelopment.

Advantages: Specific waste-end industry taxes have the advantage of collecting revenue from selected industries considered especially dangerous to the environment, without the legal and administrative steps of collecting from a broader range of industry, or solid waste in general.

Limitations: Charges are not necessarily equitable, since they are so industry specific, and the cost/benefit relationship is not clear because revenues may be applied to any clean-up site. Tax assessment methods are extremely complicated, contributing to revenue instability. Taxes may be easy to circumvent and illegal dumping may result. Pollution "havens" between States may be created when charges are dissimilar. Hazardous waste disposers may have multi-State disposal options, which increase transportation costs and risks, but these options are limited and may be prohibited by some State laws. The hazardous waste industry already is highly regulated.

Reference for Further Information: National Conference of State Legislatures (NCSL), *Earmarking State Taxes*, Denver, CO, April 1995; Natural Resources Defense Council (NRDC) Reprint, "Life and Taxes", *The Amicus Journal*, 1995; U. S. EPA, Environmental Finance Advisory Board, *Public Sector Options to Finance Environmental Facilities*, March 1992.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR SPECIAL CHARGES

Criteria/ Special Charges	Actual Use	Revenue Size	Revenue Stability	Adminis-trative Ease	Equity	Cost/ Benefit Ratio	Environ-mental Benefits
***Direct Water Use**	Mod.	Mod.	Mod.	Mod.	High	Mod.	High
Effluent	Low	Mod-High.	Mod.	Mod.	Low-Mod.	Mod.	High
Emission	Low	Mod.-High	Mod.	Mod.	Low-Mod.	Mod.	High
***Exactions**	High	High	Low	High	Low-Mod.	Mod.-High	High.
Feedstock	Low	Mod.-High	Low	Low	Mod.	Mod.	High
***Impact Fees**	High.	Mod.-High	Mod.	Mod.	High	High	High
***Severance Taxes**	Mod.	High	Mod.-High	Mod.	Mod.	Mod.-High	Mod.
***Special Assess-ments**	High	High	Mod.	Mod.	High	High	High
Waste-End Charges	Low	Mod.-High	Mod.	Low-Mod.	Low-Mod.	Low-Mod.	Mod.

High - High use (over 25 States/many localities); criteria score high (many advantages); High revenue yield (over $20 million annually in State revenue currently).

Mod.- Moderate Use (10-25 States/many localities); criteria score in medium range; Moderate revenue yield

Low - Low or rare use; criteria do not rate well (many limitations, one or more major implementation problems).

* Star indicates best rated mechanism

1.D. FINES AND PENALTIES

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Description: Violators of federal and/or State environmental laws and regulations are frequently subject to the payment of monetary fines and penalties. Many of these violators also are subject to court adjudication. The amount of fines or penalties generally is outlined in federal and State statutes, but the actual sum imposed typically results from specific administrative or judicial decisions, and may only occur after repeated violation on the part of offenders. Both municipalities and the private sector are covered by fines and penalties, although historically prosecution of private sector cases has been more vigorous.

Cases may be either civil or criminal, depending on the degree of negligence. For example, civil cases may involve a fine measured in thousands of dollars for failure to file documents such as discharge monitoring reports for wastewater and laboratory testing results for drinking water. Criminal penalties resulting from intentional polluting behavior are rare, but the resulting penalty may be measured in millions of dollars. Each federal environmental statute outlines different types of fines, penalties, and administrative and judicial procedures, including review provisions. Lawsuits may be filed against an offender by government, or as a result of citizen suits which are provided for in all federal environmental statutes. Foundations such as the National Resources Defense Council, Environmental Defense Fund, and Atlantic States Foundation, have all been successful in achieving financial settlements as a result of citizen suits.

In addition to monetary payment of fines and penalties, responsible party reimbursements to government occur as a result of contingent liability laws under the federal Superfund statutes are evaluated in this section. Although not fines or penalties *per se*, reimbursements on the part of industry, municipalities or individuals for past contamination of waste sites subsequently categorized as hazardous may be paid to the federal government, or in some cases to States.

Where appropriate, enforcement settlement agreements may include commitments for direct funding of "environmental benefit" projects, or "supplemental environmental projects" as they are called currently. Such projects, which may be on- or off-site of the location where the violation occurred, are made in lieu of dollar penalties, as determined by the courts or in out-of-court settlements. Such projects may entail contributions in the form of land, wetlands restoration, environmental education or in-kind services, and similar types of projects.

Advantages: The revenue benefits from fines and penalties, as well as from environmental benefit projects implemented in lieu of direct payment by offenders, could be considerable. Of large significance, however, are the environmental improvements to be achieved when compliance is attained through the avoidance of such fines and penalties. The deterrence value of fines and penalties may large, depending on the viewpoint of a particular municipality or business, and the trade-off between prompt compliance and paying the fine or penalty must be carefully evaluated. Fines are considered equitable by much of the public, because they emphasize the "polluter pays" principle. Large fine and penalty revenues are best suited to fund State endowments or trust funds
for future capital expenses, and smaller fines can contribute monies to specific remediation or restoration projects. Both have been used to cover unanticipated budgetary shortfalls in a number of States. Non-revenue contributions can also be important, and create environmental incentives and attract additional resources.

Limitations: The revenue stream resulting from fines and penalties is highly unpredictable, both because it is unclear when and if a violation may occur, and also because court actions and appeals may occur over a long time period with the final outcome highly uncertain. Thus, these monies are not suited to fund environmental program operating costs on a regular basis. Moreover, since most fines and penalties by law are deposited initially in State treasuries, or the U.S. Treasury in the case violations of federal law, States must take specific legal steps to dedicate funds to environmental purposes instead of general budgetary support. The total amount of revenue generated often depends on the number of staff available to inspect and monitor activities to uncover violations.

The potential for a conflict of interest between collecting fines and penalties, and gaining compliance without the necessity of payments, is an ongoing and extremely delicate issue. Fines and penalties may also result in inequities and have a weak cost/benefit relationship, since small offenders or offenses may cost considerable sums of money while larger offenders, both municipal and industrial, may be let off the hook. It is often difficult to assess fines against small communities and industries in financial difficulty.

Summary: Fines and penalties can be a source of funds for environmental programs, as well as environmental benefit projects in lieu of direct payment by violators, but should be considered as a last resort to encourage municipalities, industries or businesses to comply with State regulations or to submit to a compliance schedule. Monetary payments will not generate a steady, dependable stream of income.

Three sources of environmental funding from fines and penalties are discussed following: environmental benefit projects in lieu of financial payments, monetary payments of fines and penalties, and reimbursements to Superfund site cleanup.

LIST OF FINES AND PENALTIES
(In Alphabetical Order)

*1. Environmental Benefit Projects (Supplemental Environmental Projects)
*2. Monetary Payments
*3. Reimbursements (Superfund Liability Cost Recoveries)

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

ENVIRONMENTAL BENEFIT PROJECTS
(Supplemental Environmental Projects)

Description: Environmental benefit projects, or supplemental environmental projects as they are currently labeled, are special environmental improvement projects undertaken at the expense of the violator of an environmental regulation or specific permit requirement. They may be in lieu of or in addition to direct monetary payment by the offender, and may be arranged by adjudicatory authorities or in out-of-court settlements.

Actual Use: Many States have instituted environmental benefit programs in the last five years. Such projects may result either from government action or citizen suits. First preference is given to remediation of an environmental hazard in the same geographical area, i.e., the particular plant, city, or water body, but funds cannot used by the offender to comply with violations which resulted in the fine or penalty in the initial instance. Examples of environmental benefit projects include purchases or donations of land for open space or recreational uses, park and nature facilities, improved lake access for boating and hiking, aquariums, construction of recycling facilities, environmental monitoring and testing, hands-on environmental education projects, and even reduction in pollutant loading by the same company in another geographical area. Use of environmental benefit support for research and planning generally is not considered the best use.

Potential Use: The environmental projects that might be included are many, in all environmental media, and Federal policy has been somewhat flexible. Commingling of supplemental environmental benefit project funds in single governmental trust accounts might permit funding of larger projects on an ongoing basis, although this undercuts the geographical proximity criterion.

Advantages: Special environmental projects undertaken in this fashion may be those which otherwise would not be pursued due to budgetary constraints, and thus can be very important in creating environmental incentives and generating broad interest. The potential exists for leveraging other governmental funds, once seed money is provided. Such projects also enable the original offender to undertake a "greening" action, thus saving face. If the project result from a citizen suit, citizens may have a large input and community-based environmental values will be enhanced.

Limitations: Environmental benefit projects may not be equitable, nor support a strong cost/benefit relationship, because they may not compensate for the environmental damage caused by the violation, and it may be very difficult to put a monetary number on the damage. Moreover, because such projects may have to be specially designed, they may be very small and developed piecemeal with no assurance of continued support. Critics complain that they may have limited utility.

Reference for Further Information: New York State Department of Environmental Conservation, *The Conservationist*, June, 1996.

MONETARY PAYMENTS

Description: Fines and penalties for environmental violations range from the very small in the case of administrative citations or civil penalties, to huge monetary penalties for criminal violations yielding millions of dollars in a single suit. In general, federally-prosecuted cases require monetary penalties be deposited in the U.S. Treasury, although they then may be dedicated to States. Most cases settled under State law or pursued by State officials accrue to the State. However, States must have specific delegated program authority, such as federal delegation of the NPDES permit program under the Clean Water Act, or drinking water primacy, to have enforcement authority under federal programs. The major local governmental legal authority occurs for delegated industrial pretreatment programs. Fines and penalties resulting from citizen suits must be deposited in government accounts. Oil spill cases are pursued by the Coast Guard, not the Environmental Protection Agency.

Actual Use: Most States collect fines and penalties, and dedicate them to environmental programs. Many have set up trust funds to receive the payments and then spend monies for environmental purposes (includes Florida, Indiana, Massachusetts, Missouri, Montana, Ohio, Pennsylvania, New Jersey, New York, Virginia, Washington and Wisconsin). Most of these States collect several millions in fines and penalties annually, with New Jersey heading the list with almost $500 million in one year. For example, New York collected a $3 million criminal penalty in 1994 from one company, which also had to build a $20 million industrial pretreatment facility. The Virginia Environmental Endowment is a sizable trust fund begun 20 years ago with contributions of almost $10 million from two companies, which supports research and special projects. Some fines are dedicated to local projects, such as the Massachusetts Bay Trust Fund and Massachusetts Bay Credit Project, that fund Boston Harbor clean-up, beach and salt marsh restoration, and estuary programs.

Potential Use: Fines and penalties could be used by States and localities for any environmental purpose. States also can pursue out-of court monetary settlements, thus reducing costs.

Advantages: The potential to generate considerable revenues from fines and penalties exists. When commingled in State trust fund accounts, revenues will continue to grow and be sufficient to use for infrastructure construction. Interest income is also generated.

Limitations: Revenue streams are unpredictability and delicate. "Bounty hunting" often has been raised when the seeking of fines or penalties appears more important than gaining compliance on the part of the offender. Citizen suits have this potential, since nonprofits may recover expenses and legal fees. The costs of documenting enforcement cases and collecting fines are very high, and must be weighed against the likelihood and importance of gaining compliance without fines.

Reference for Further Information: Discussion with nonprofit legal foundations: Atlantic States Foundation, Natural Resources Defense Council (NRDC).

REIMBURSEMENTS
(Superfund Liability Cost Recoveries)

Description: These fine or penalty-type reimbursements arise because of the "joint and several liability" laws under federal Superfund statutes (both CERCLA and SARA), as well as State hazardous waste laws. Under these contingent liability provisions, all past and present users of sites designated as federal Superfund sites, and many State-designated sites, are liable for damage cost recovery, including abandoned sites. Users, called responsible parties, include waste generators, transporters who select the disposal site, and disposal facility owners and operators. Responsible parties are liable for both clean-up costs and related damage to natural resources.

Actual Use: Currently, 70 percent of site cleanups are funded by private parties found responsible for waste at Superfund National Priority List sites. Cost-recovery is primarily for the federal government, but States also have cost-recovery programs. However, reimbursements under Superfund statute clauses on the "replacement and acquisition of natural resources" have been rare.

Potential Use: The potential for cost-recovery is, theoretically, huge. However, the legal difficulties in collecting reimbursements mean that negotiations have been protracted and expensive, particularly for abandoned sites and non-industrial parties. Interest on Superfund settlement accounts also can be large, and amendments to existing law might create the ability to use such funds for State purposes off-site, such as credit enhancement for SRF activities, liability insurance funds for small facilities, and brownfields redevelopment. The Superfund natural resources damage laws might be more widely used if ecological damage could be more readily valuated.

Advantages: The benefit of vigorously pursuing Superfund liability cost-recovery is not only in the potential cost-savings, but also in creating environmental incentives for pollution prevention, including illegal dumping, in the first place. Equity and the cost/benefit relationship is strongly upheld if more responsible parties contribute to clean-up, although cost-recovery must be based to some extent on ability to pay which is not acknowledged in Superfund statutes. Many financial leveraging possibilities exist.

Limitations: The revenue potential is highly unpredictable, and administrative and legal costs of pursuing offenders may be prohibitive. Moreover, all negotiations are protracted, and may delay site clean-up activities. The joint and several liability clauses of current Superfund statutes are the subject of large debate, and many "softening" Congressional amendments add to uncertainties.

Reference for Further Information: The Congressional Research Service (CRS), Report for Congress, *Summaries of Environmental Laws Administered by the Environmental Protection Agency,* Washington, D.C., January 1993; U.S. EPA, Environmental Finance Advisory Board, "Preliminary Analysis of Using the Superfund Program as Cross-Collateralization", June 1995.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR FINES AND PENALTIES

Criteria/ Fine or Penalty	Actual Use	Revenue Size	Revenue Stability	Administrative Ease	Equity	Cost/ Benefit Ratio	Environmental Benefits
***Environmental Benefit Projects**	High	Low	Low	High	Mod.	Mod.	High
***Monetary Payments**	High	Low - Mod.	Low	Low	Mod.	High	High
***Reimbursements (Superfund Liability Cost Recoveries)**	High	Mod.	Low	Mod.	Mod.	Mod.	High

High - High use (over 25 States/many localities); criteria score high (many advantages); High revenue yield

Mod.- Moderate use (10-25 States/many localities); criteria score in medium range; Moderate revenue yield

Low - Low or rare use; criteria do not rate well (many limitations)

* Star indicates best-rated mechanisms

2. TOOLS

FOR

ACQUIRING CAPITAL

2. TOOLS FOR ACQUIRING CAPITAL

INTRODUCTION

In contrast to raising revenue through taxes and fees which are subsequently dedicated to environmental projects, this section presents the three major ways in which governments and the private sector acquire capital to invest in pollution prevention, environmental protection, and environmental improvements: **bonds**; **loans**; and **grants**. Bonds and loans entail repayments of principal and interest, although interest rates may be governmentally subsidized. In contrast, grants represent sums of money awarded by the federal government, States, and even the private sector for specifically designated purposes for which no repayment is required.

Each form of acquiring capital, bonds, loans and grants, serves distinct purposes and have certain limitations. Grants are regarded as highly desirable by recipients, and are often crucially important in start-up situations. However, since grants are designed by the awarding agency to meet ceratin, often specific, goals, they may carry additional mandates, require matching monies, involve difficult application procedures, and be piecemeal and small in size for individual recipients. Grants, moreover, are hardly free in the sense that the ultimate sources of funds are tax dollars. The redistribution of tax revenues to some communities and not others can be a very sensitive issue. Historically, many grant programs have been somewhat unstable since they must be approved annually by legislative bodies whose memberships are ever changing. The total amount of grant monies, moreover, is strictly limited by appropriation and competition for grants is very keen.

Government loan programs have similar limitations as do government grant programs, although interest rates on the loans may be subsidized particularly for small communities. In contrast, commercial loans are more flexible, but typically more expensive for public and private borrowers. Commercial loans represent the greatest source of investment capital for private businesses, compared to grants and bonds.

At present, the tax-exempt municipal bond market remains the dominant source of governmental environmental financing in this country, even compared to grants and loans. The federal wastewater treatment construction grants program has virtually ended, and even the Clean Water State Revolving Fund (SRF) loan program which has replaced it and the newer Drinking Water SRF, operate through the bond market . Over half of the Clean Water SRFs issue bonds to leverage their wastewater loans. By the end of 1997, these SRFs had issued almost $10 billion in revenue bonds out of a total loan pool of $24 billion. Drinking Water SRFs also are beginning to issue bonds to leverage their monies. Furthermore, local debt obligations, both general obligation and revenue bonds, account for the greatest source of local capital for environmental improvements ranging from pollution control to parks and open space. Although the 1986

Tax Reform Act made it more difficult for the private sector to finance environmental infrastructure through State and local tax-exempt private activity bonds, these bonds are still widely used as are the more costly taxable bonds.

Although bonds represent the largest source of ready and expandable capital, they are the most complex and expensive way to borrow, with the exception of SRF bond-backed loans for which interest rates are subsidized. The high expense results from the legal and other fees, administrative time, and in some cases the voter approval process required for issuing bonds. Since small borrowers incur the same costs as large borrowers, loans may be more advantageous for small borrowers than bonds. While grants are the cheapest source of funds, comparisons of government grant/loan equivalency ratios demonstrate that additional governmental mandates required under grants may substantially raise the costs and time of construction (lowering the effective value of the grant aid).

Bonds, loans and grants are presented separately in the following sections, with emphasis on recent bond innovations and the State Revolving Fund (SRF) programs. While government loan programs are fewer in number, grant programs, particularly federal ones, are more numerous. The grant narratives give some indication of the size and durability of these programs, but are not summarized in a comparison matrix. Additionally, noted throughout this Section are government grants and loans made to and by the private sector, although these are presented in more depth in **Section 8.: Tools to Pay for Community-Based Environmental Protection** and **Section 10. : Tools to Access Financing for Small Businesses and the Environmental Goods and Services Industry**.

2.A. BONDS

2.A. BONDS

Description: A bond is a written promise to repay borrowed money on a definite schedule and usually at a fixed rate of interest for the life of the bond. Bonds can stretch out payments for new projects over a period of fifteen to thirty years. State and local governments repay this debt with taxes, fees, or other sources of governmental revenue. As discussed in this section, it is the source of pledged security or repayment for bonds, or the type of collateral used, that defines the type of bond, for example, general obligation bonds, a myriad of revenue bonds, or hybrids.

Since most government bonds are tax-exempt, bondholders are generally willing to accept a lower rate of return on their investment than they would expect on a comparable commercial bond. Bond financing, therefore, can often provide State and local governments with low-interest capital.

Some State and local governments are required by statute to seek voter approval for certain types of bond issues. For example, most State and local governments cannot issue general obligation bonds without voter approval. If achieving this type of approval is difficult or time-consuming, State and local governments may want to consider issuing bonds that do not require voter approval, or exploring other options for capital financing, even if interest costs may be higher.

The Tax Reform Act of 1986 altered the tax-exempt status of some government-issued bonds. The Act reclassified bonds into two categories, governmental purpose bonds and private activity bonds. Governmental purpose bonds are automatically tax-exempt, but private activity bonds must meet certain criteria in order to be classified as tax-exempt. To qualify as a governmental purpose bond, at least 90 percent of the bond proceeds must be used by a State or local government, and no more than 10 percent of the debt service on the bond may be derived from or secured by a trade or business. If a bond does not meet these criteria, it is classified as a private activity bond. Private activity bonds that are issued for specific public-purpose projects-- such as water supply facilities, sewage treatment plants, solid waste disposal facilities, and some hazardous waste plants--can be tax-exempt. However, each State is limited to issuing private activity bonds in the amount of $50 per capita or $150 million each year, whichever is greater.

Advantages: Bonds provide financing for immediate capital needs. If the project qualifies, tax-exempt bonds can be a low-interest way of acquiring capital.

Limitations: Certain types of bonds require voter approval. Bonds only spread out costs of a project; an ultimate revenue source still needs to be identified. There may be some competition for debt capacity at the State or local level. Some State and local governments may also have statutory limitations on the dollar amount and/or number of bonds that can be issued. Issuing bonds is an expensive and time-consuming process, and requires sound legal and financial advice.

LIST OF BONDS
(In Alphabetical Order)

1. Advance Refunding Bonds
*2. Anticipation Notes
3. Appropriation-Backed Bonds
4. Asset-Backed Revenue Bonds
5. Capital Appreciation and Zero Coupon Bonds
*6. Certificates of Participation
7. Derivatives
*8. Double-Barrel Bonds
*9. General Obligation Bonds
10. Mandate Bonds (Environmental)
11. Mini/Baby Bonds
*12. Moral Obligation Bonds
*13. Mortgage Lease-Back Revenue
*14. Private Activity Bonds
*15. Revenue Bonds
*16. Short-Term Municipal Bonds
*17. Special Assessment Bonds
*18. Special Tax Bonds
*19. State Revolving Fund (SRF) Revenue Bonds
20. Structured Municipal Bonds
21. Tax Increment Bonds

[**Special Note:** We received writeups for two innovative new bond tools after this section was completed. Please see the write-ups for **Better American Bonds** and the **EPA: Environmental Bond Guarantee Program** in Appendix A, on pages A-2 and A-3, respectively.]

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

ADVANCE REFUNDING BONDS

Description: Advance refunding is the refunding of an outstanding issue of bonds by the issuance of a new bonds prior to the date (defined as more than 90 days before) on which the earlier bond can be redeemed or paid. Advance refunding is undertaken for a variety of reasons, but primarily to take advantage of lower interest rates when general economic conditions permit, and/or to alter debt reserve requirements, such as to lower coverage requirements. For a period of time both the bond being refunded, or refinanced, and the new bond may be outstanding, although typically the indenture securing the earlier bond may be defeated by deposit of the new issue proceeds into an escrow fund for the earlier bond (see also **Section 6., Refinancing Loans**).

Actual Use: Prior to the Tax Reform Act of 1986, advance refunding in the municipal market was a major source of bond activity, accounting for up to 40% of all new bond issues, and any bond issue could be advance refunded numerous times to adjust outstanding debt to current interest rates. Actual use now is sharply curtailed as a result of the new tax code, which limits each governmental activity bond issue to one advance refunding if the original issue was issued after December 31, 1985. Thus, bond leveraged State Revolving Funds (SRFs), are extremely limited in their use of advance refunding. Advance refunding now is prohibited entirely for qualified tax-exempt private activity bonds, e.g., bonds financing private wastewater facilities, except for non-profit 501 (c)(3) issues.

Potential Use: Local government bonds issued before 1985 may still advance refund these earlier bonds more than once, and SRFs often have given advice to communities on how and when to proceed with refunding.

Advantages: Significant savings in interest costs to lenders may be achieved as a result of advance refunding. However, SRF issuers will have to carefully examine the interest rate trends to assure that the one-chance refunding nets the issuer the greatest benefit possible. Advance refunding may reduce significantly the size of debt reserve funds (coverage) or other restrictive covenants.

Limitations: Other restrictions are outlined in the 1986 Tax Reform Act, including complex technical specifications and requirements that apply to the temporary periods for refunded redemptions, reserve funds and yield restrictions. These restrictions have made it exceedingly difficult for SRF's using the over funded reserve fund method of leveraging, to advance refund their bonds at all. These SRFs need to seek the advice of their investment bankers on the handling of reserve funds and Guaranteed Investment Contracts (GICs) before considering advance refunding.

Reference for Further Information: Council of Infrastructure Financing Authorities (CIFA), *State Revolving Funds Under Tax Reform,* CIFA Monograph No. 2, William Graham, Paul Shinn and John Petersen, Washington, D.C., June 1989.

ANTICIPATION NOTES

Description: Anticipation notes are short-term bond instruments repaid with anticipated revenues from various sources. They can be used to acquire immediate capital when other funding sources are delayed or unidentified. For example, if a city anticipated a future federal grant for a project, the government might issue a Revenue Anticipation Note to meet interim construction costs.

There are four primary types of anticipation notes: *Tax Anticipation Notes* (TANs) are issued in anticipation of tax receipts and paid from those receipts; *Revenue Anticipation Notes (RANs)*are issued in anticipation of other sources of future revenues, often federal or State aid; *Bond Anticipation Notes (BANs)*are supposed to provide financing until a future bond offering is made; *General Obligation (GO) notes* are not backed by any particular revenue source, but by the full faith and credit of the issuing government.

Actual Use: Both State and local governments widely use anticipation notes to meet short-term capital needs while awaiting other sources of revenue.

Potential Use: Anticipation notes can be used to meet short-term gaps in project finance, when the ultimate revenue source (grants, bonds etc.) has been delayed, or when suitable revenue sources have not been identified.

Advantages: Tax anticipation notes provide immediate funds for capital projects and other financing needs.

Limitations: Interest rates for anticipation notes are typically higher than on longer-term securities. They represent only a temporary funding source. Ultimately, the final source of funding still needs to be identified.

Reference for Further Information: *Moody's on Municipals: An Introduction to Issuing Debt*, Moody's Investor Service, Moody's Public Finance Department, Inc., 1989 and subsequent additions, 99 Church St., New York, NY 10007; (212) 553-1658. Lamb, Robert, and Rappaport, Stephen, *Municipal Bonds*, McGraw-Hill Book Company, New York, NY, 1987. Contain good basic introduction to anticipation notes.

APPROPRIATION-BACKED BONDS

Description: Appropriation-backed bonds are State special obligation bonds using a pledge of future State direct appropriations, typically annual appropriations, as the form of pay back to the bondholders. Such bonds may be either tax-exempt or taxable, depending on what is being financed or how monies are managed, and constitute a specific type of State revenue bond. State bond issuance is authorized by State legislatures, and the issuing authority may enter into a service contract or lease arrangement with the State or State agency undertaking the activity being financed.

Actual Use: Many States use appropriation-backed bonds for special State projects which do not fall readily under any specific environmental program category, or when there is an anticipated need for funds for subsequent outlay. For example, the New York State Environmental Facilities Corporation, which houses the SRF program, has used appropriation-backed bonds for projects undertaken on behalf of the State, such as the construction of State park facilities, a State hospital wastewater treatment plant, and State Thruway Authority hazardous waste clean-up. Some States have used appropriation-backed bonds to raise the 20% State match required under the SRF program, in which case taxable bonds may be issued to avoid expensive arbitrage rebate accounting. However, in recent years appropriation-backed bonds have been challenged legally in a number of States, on the grounds that legislative appropriation of funds does not constitute adequate assurance for the bondholders and ties the hands of future elected officials. Hence, current use of appropriation-backed bonds is less common.

Potential Use: Appropriation-backed bonds could be used to provide money for the State match required for the drinking water revolving fund program recently authorized by the Safe Drinking Water Act of 1996, because the 20% State match payments could be deferred until 1998. Other potential uses are many, including open space acquisition and solid waste programs, and government air pollution control facilities.

Advantages: These bonds can be useful as a prompt and efficient financing device to cover special needs as they arise, and which may fall outside of the normal budgeting cycle of State legislatures. In theory, they constitute a special obligation of the State.

Limitations: The legal uncertainty surrounding appropriation-backed bonds has made States cautious about using them when other financing means are available. In some States, use of such bonds is prohibited by the State constitution.

Reference for Further Information: The Bond Market Association (BMA), *Fundamentals of Municipal Bonds*, Fourth Edition, New York, NY, 1990. The BMA updates this book periodically, but a fifth edition is not expected until 2000. For information, call (212) 809-7000.

ASSET-BACKED REVENUE BONDS

Description: An asset-backed bond is a revenue bond backed by a pledge of collateral in the form of a very specific asset, usually a physical asset such as a building, facility or land, and income flow attached to these. More recently, assets have been interpreted to include a specific revenue stream or portion of a larger revenue stream, such user fees. Asset-backed bonds are somewhat similar to certificates of participation, except they are bonds not notes. Bondholders do not have claim on all the assets of the bond issuer, but only the asset described in the legal bond covenants. Typically, asset-backed bonds arise from local units of government and the private sector.

Actual Use: Asset-backed bonds are increasingly common, particularly for defined and limited funding purposes, and may be issued in smaller denominations and for shorter time periods (under ten years) compared to other revenue bonds.

Potential Use: Asset-backed bonds could be used to finance a wide range of environmental purposes, including land acquisition for parks and conservation, brownfields redevelopment, and air pollution control equipment as well as for water and wastewater projects.

Advantages: Using asset-backed bonds allows municipalities or private entities to structure bonds in a way which does not expose their full range of assets, or credit, to the market, but still borrow capital funds for a defined purpose. They may enable businesses to proceed with specific environmental projects when their overall financial condition may not permit the issuance of larger bonds without extremely high interest charges or the or the use of costly bond insurance.

Limitations: Because these bonds are not backed by the full faith and credit of the issuer or all of the issuer's revenue stream, they may be considered more risky and thus be more costly to the issuer in terms of increased interest costs and bond issuance costs including higher coverage for debt reserve funds. The collateral pledged may bear little relationship to the project to be funded. In some cases, certificates of participation may be preferable because bond issuance costs are avoided.

Reference for Further Information: Heide, Susan C., Klein, Robert A., and Lederman, Jess, editors, *The Handbook of Municipal Bonds*, Probus Publishing, 1994.

CAPITAL APPRECIATION AND ZERO COUPON BONDS

Description: Capital appreciation bonds (CABs) and zero coupon bonds (zeros) are used in the issuance of State and local general obligation and revenue-backed debt. They both provide investors a guaranteed reinvestment rate, so they are most attractive to investors when interest rates are expected to fall. CABs, also called compound interest bonds, accumulators or municipal multiplier bonds, are sold at face value (par) but the issuer makes no periodic interest payments. Instead, the interest component is held by the issuer and compounded at a stated rate so the investor receives a lump sum multiple of the principal and interest. CABs result in more bond proceeds for the same use of debt capacity (total par value) than do zeros, which are the most extreme version of original issue discount bonds. Zero coupon securities also make no periodic interest payments. Instead, they are sold at deep discount from their face value. At maturity date, the security is redeemed at face value. The investor receives the rate of return based on the appreciation from the discounted price to the full face value. Zero coupon bonds are also issued by corporations and may be created by a brokerage firm when it "strips" the coupons off a bond and sells the corpus and the coupons separately. This latter technique often is used with Treasury bonds. The Internal Revenue Service maintains that the holder of a taxable zero owes income tax on the interest that accrues, but not paid, each year, so such bonds tend to be bought for Individual Retirement Accounts and Keogh Accounts, where they are tax-sheltered. Buying a tax-exempt zero frees the purchaser of paying taxes on imputed interest income. Zeros are among the most volatile of fixed-income securities, falling more dramatically when interest rates rise and rising more rapidly when interest rates decline.

Actual Use: Both taxable and tax-exempt CABs and zeros have been used extensively.

Potential Use: These types of bonds can be used to finance virtually any type of physical project for environmental purposes.

Advantages: CABs and zeros tend to be attractive to investors who are interested in investing for a future need, such as retirement, or want the convenience of not having to deal with how to reinvest periodic interest payments. Governments are able to delay interest payments until the final maturity.

Limitations: The issuer must have substantial funds available at maturity for what is effectively a balloon maturity.

Reference for Further Information: Government Finance Officers Association, 180 North Michigan Ave., Suite 800, Chicago, IL 60601, Phone: 312-977-9700, Internet: **www.gfoa.org**; *Internet Debt Reference Guide*: **www.window.texas.gov/localinf/debtguide/**. *Moody's on Municipals: An Introduction to Issuing Debt*, Moody's Investors Service, Public Finance Department, 99 Church St., New York, NY 10007, Phone: 212-553-1658.

CERTIFICATES OF PARTICIPATION

Description: Certificates of participation (COPs) are financial instruments used to finance capital projects, which are backed by the leasing of real property, physical assets, such as wastewater plants or equipment. The assets are held by a trustee, and the certificate issuer pays yearly lease payments to the certificate holders until the debt is repaid. If the certificate issuer should default on the lease payments, the trustee is responsible for selling the physical assets and using the proceeds to reimburse the certificate holders. Certificates of participation are similar to mortgage bonds and asset-backed bonds, but are not legally classified as such, meaning that State and local governments can issue them without voter approval and without affecting their overall bonding capacity.

Actual Use: COPs are used primarily by local governments, but sometimes a State, to finance purchase of property or physical assets, such as mass transit buses, sports facilities, or parks. COPs have been widely used in California where bond financing through the ballot box is not always a viable option. For example, San Diego recently issued COPs to help pay for renovation of Balboa and Mission Bay Parks, and the COPs were guaranteed by city golf course fees and hotel tax revenues. Washington State issued COP for park redevelopment backed by park fees. COPs were used in Olathe, Kansas to purchase on historic site and in Arlington, Texas for a municipal golf course. COPs also may be repaid by annual legislative appropriation.

Potential Use: A wastewater treatment or solid waste management facility might be financed through certificates of participation. A certificate of participation can also provide an excellent opportunity to structure a public-private partnership (see **Section 4: Tools for Building Public-Private Partnerships**).

Advantages: Certificates of participation do not require voter approval, and do not count against debt capacity limits, but allow governments to pay back year-by-year. In some States, special districts cannot issue bonds but may issue certificates backed by equipment. COP payments to private investors are tax-exempt, an attractive feature.

Limitations: These certificates can only be issued to finance capital projects where a real asset exists that is suitable as collateral, and only in jurisdictions in which local authorities are allowed to negotiate long-term leases. COPs cost 20-35 basis points more than conventional or bond financing.

Reference for Further Information: The Trust for Public Land, *Green Sense: Financing Parks and Conservation*, Spring and Autumn, 1996, Spring 1997, Phyllis Myers, Editor, San Francisco, CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

DERIVATIVES

Description: A derivative product is a financial instrument whereby the value of the instrument is "derived" from the value of a specific, underlying market or index. For example, a bond paying an interest rate based on changes in the stock market, may be referred to as a derivative because the value of the bond changes in response to a market, which may be measured by an index such as the Standard and Poor's 500. In this particular case, the "underlying"is the Standard and Poor's 500.
A wide range of financial instruments have been classified in a generic sense as derivative products. These instruments include swaps, caps, options, puts, calls, and collars. The common theme of all of these products share is that their value is derived from the performance of specific indices or cash markets. From an accounting perspective, a derivative is defined as having two characteristics: 1.) the holder has the right to participate in some or all of the price change experienced by the underlying; and 2.) the instrument's value at maturity can be settled in cash as opposed to taking ownership of the underlying.

Actual Use: Many States and medium to large municipalities have used derivatives as a way of reducing financial risk, either interest rate risk or other related risks. The most common type of derivative used is the interest rate swap which provides savings to municipal issuers by permitting them to exchange floating or fixed-rate payments or vice versa. Standard and Poor's recommends that municipal issuers should generally minimize risk by limiting swaps based on markets other than municipals, since many of these other markets can be highly volatile.

Potential Use: Derivatives can be a useful tool to help States and larger, financially healthy, municipalities (with financially sophisticated managers) reduce their interest rate risks and to a lesser extent, maximize financial results. In general, SRFs have avoided use of derivatives as unnecessarily complicated for their programs, including for arbitrage considerations.

Advantages: Derivatives can be an excellent way to manage interest rate risks.

Limitations: Derivatives are a sophisticated tool for the sophisticated investor. Some can be quite volatile and financially risky. They should not be undertaken lightly or without professional financial advice, which may be quite costly. There are other financial tools that should be examined/used before considering derivatives.

Reference for Further Information: Standard and Poor's *Structured Municipal Finance Criteria*, McGraw Hill, 1993. Standard and Poor's Corporation, Municipal Finance Department, 25 Broadway, NY, NY 10004. Goldman Sachs & Co., 85 Broad Street, New York, New York 10004.

DOUBLE-BARREL BONDS

Description: A double-barrel bond is a revenue bond secured by a pledge of two (or more) sources of payments, typically a user fee and, secondarily, by the credit of the issuing government through *ad valorem* taxes (See writeup on "General Obligation Bonds" later in this section). Occasionally, a general obligation bond may also be backed by a specific revenue.

Actual Use: Both State and local governments increasingly have used double-barrel bonds to finance environmental improvements, including renovation of wastewater treatment plants and start-up capital for stormwater districts. The revenue stream pledge may be in the form of multiple taxes, such as the real estate transfer tax or special assessment taxes.

Potential Use: Double-barrel bonds can provide cheaper capital than conventional revenue bonds for projects that generate revenues, such as solid waste landfills, wastewater treatment plants, drinking water utilities, or stormwater management districts.

Advantages: Double-barrel bonds are a good way for States or localities, particularly those with low credit ratings or low debt capacity, to obtain lower interest rates on bond issues compared to conventional revenue bonds. The pledge of a special tax or fee to a visible environmental project may enhance the acceptability of the tax or fee, and increase leveraging potential. Double-barrel bonds are also useful in situations where the public benefit, for example, from improved water quality achieved by increased wastewater treatment is broader than the population base paying the user fee.

Limitations: Some State or local governments may have statutory limitations on the issuance of double-barrel bonds, or they may subject these bonds to the same statutory limitations as General Obligation bonds.

Reference for Further Information: Lamb, Robert, and Rappaport, Stephen, *Municipal Bonds*, McGraw-Hill Book Company, New York, 1987. Contains a good basic introduction to double barrel bonds.

GENERAL OBLIGATION BONDS

Description: General Obligation (GO) bonds are bonds backed with the guarantee that the issuing government will use its taxing power to repay the bond. For State GO bonds, the income and sales taxes secure the debt, while for localities it typically is the property tax. There are two primary types of GO bonds: unlimited *ad valorem* tax debt and limited *ad valorem* tax debt. Unlimited *ad valorem* tax debt occurs when the government pledges its full faith and credit with no limitations on possible property tax rates. Limited *ad valorem* tax debt occurs when the government pledges its full faith and credit, but with a cap or restriction on possible property tax rates to repay the bond. This is regarded as less secure than an unlimited bond if the tax limits could conceivably be reached within the term of the bond, or if other tax revenues are not available for debt service.

Actual Use: Both State and local governments have used GO bonds to finance capital projects related to environmental programs and activities, including natural lands purchase. State referendum environmental bonds, which often are very large, are GO bonds paid for by a variety of sources of revenue including appropriations.

Potential Use: GO bonds are suitable for financing any project that requires large amounts of capital up-front.

Advantages: GO bonds backed by full taxing power are regarded as safer than bonds backed by a single revenue source, and generally command lower interest rates and lower reserve fund requirements. GO bonds also have structural flexibility since the issuing government can repay the bond with a variety of revenue sources.

Limitations: Voter approval is frequently required for GO bonds. Many States and cities also place statutory limits on total GO debt, or on GO debt as a percent of property valuation. The private bond rating agencies consider the amount of a government's GO debt, or its debt ceiling, in rating bonds, even though water and sewer are theoretically not included, the rating agencies generally make note of water and sewer GO debt in establishing bond ratings.

Reference for Further Information: Lamb, Robert, and Rappaport, Stephen, *Municipal Bonds*, McGraw-Hill Book Company, New York, 1987. Contains good basic introduction to GO bonds.

MANDATE BONDS (Environmental)

Description: The Government Finance Officers Association (GFOA) several years ago proposed the creation of a new category of tax-exempt bonds called "Mandated Infrastructure Facility Bonds" (MIFs) for which many of the federal restrictions on tax-exempt financing would be eased. The proposal suggests that private activity bonds used to finance facilities built, acquired, renovated, or rehabilitated due to a requirement in a federal statute or regulation should receive the same or more favorable tax treatment as governmental bonds. Specifically, an MIF bond would ease the following restrictions contained in the 1986 tax act:

- The private business use and payment test would be 25 rather than 10 percent;
- The 5 percent private business or disproportionate use test would not apply;
- Arbitrage rebate requirements would not apply, except that yield restrictions would govern investments, and arbitrage earnings would be used for the project;
- Interest earned on the bonds would not be subject to either individual or corporate minimum alternative taxes; and
- Financial institutions would be allowed to deduct 80 percent of the cost of purchasing and carrying the bonds without regard to issuance limitations.

By targeting the proposal to mandated infrastructure and requiring that property be governmentally owned, the GFOA hopes to allay fears that creation of this new bond is a return to pre-1986 bonds.

Actual Use: Mandate bonds are still only proposed. There have been other similar proposals from environmental interest groups and various Congressional Representatives.

Potential Use: Mandate bonds could be used by State and local governments to finance federally-mandated construction, renovation, expansion, and upgrade of environmental facilities.

Advantages: Mandate bonds would allow State and local governments to retain tax-exempt status for bonds used to finance capital projects that involve greater private participation than is currently allowed for tax-exempt governmental bonds.

Limitations: Creating mandate bonds would require federal legislative action.

Reference for Further Information: GFOA, Chicago, Illinois, Internet: **www.gfoa.org**.

MINI/BABY BONDS

Description: Mini Bonds, also called baby bonds for their smaller-than-normal face or par values (generally less than $1000, usually $100 to $500, or even $25), are characterized by direct marketing from issuers to investors. Modeled after federal savings bonds, they bring segments of the bond market within reach of small investors and open a source of funds to issuers who lack entree to the large institutional market. Other than their small denominations and direct marketing, baby bonds have diverse characteristics designed for investors with different objectives. For example, some are structured as capital appreciation bonds so investors do not have to worry about reinvesting periodic interest earnings (see also earlier in this section, the writeups on **Capital Appreciation Bonds** and **Zero Coupon Bonds**).

Actual Use: In 1997, the Lower Colorado River Authority issued both capital appreciation bonds and current interest bonds in $500 increments to a maximum of $10,000 per owner, with varying maturities of 3, 5, 11 and 12 years. The City of Tacoma, Washington Solid Waste Utility sold $2 million in $1000 par value, 3 and 5-year bonds as part of a $71 million debt refinancing rated A by both Moody's and Standard and Poor's. Baby bonds have experienced widespread use at state and local levels since the late 1970's.

Potential Use: Mini/baby bonds could be used to finance relatively small, targeted environmental investments, such as non point source pollution control measures.

Advantages: Lower costs of issuance and flexibility are the chief advantages.

Limitations: Mini bonds generally entail higher administrative costs for distribution and processing, relative to total money raised, and they lack a large and active market that ensures liquid for bond holders.

Reference for Further Information: Petersen, John and Hough, Wesley, *Creative Capital Financing for State and Local Governments*, Government Finance Research Center , 1983; Internet *Debt Reference Guide*: **www.window.texas.gov/localinf/debtguide/**.

MORAL OBLIGATION BONDS

Description: A moral obligation bond is a bond secured from revenues from a financed project, as well as a non-binding pledge that any deficiency in pledged revenues will be reported to the State legislature, which may appropriate State monies to make up the shortfall. Under most State laws, if a draw down of the bond's debt reserve occurs, the bond trustee must report the amount used to the governor and the State legislature. The State legislature is then authorized to appropriate the requested amount to repay the bondholders, although there is no legally enforceable obligation to do so.

Actual Use: Since 1960, over 20 States have issued moral obligation bonds. The first State to issue this type of bond was New York, which issued moral obligation bonds to finance a housing authority. In most cases, moral obligation bonds have been self-supporting, and no State financial assistance has been required. In all recorded instances to date in which the moral pledge was actually called upon, the respective State legislatures responded by appropriating the necessary amounts of monies.

Potential Use: Moral obligation bonds can be used to acquire project capital at lower rates than revenue bonds. Since they generally do not count against debt issuance limitations, they are particularly useful for governments that are approaching debt limits.

Advantages: Typically, moral obligation bonds do not count against debt limitations. Moral obligation bonds can obtain interest rates almost as low as general obligation bonds because they are backed by the pledge of repayment.

Limitations: The process required to issue moral obligation bonds may involve legislative action in some States. Because the pledge of repayment is not legally enforceable, debt holders may expect (demand) slightly higher rates of return on moral obligation bonds as compared to general obligation bonds.

Reference for Further Information: Raftelis, George A., *Comprehensive Guide to Water and Wastewater Finance and Pricing*, second edition, CRC Press/Lewis Publishers, Chelsea, Michigan, 1989. Contains a basic introduction to bonds, including a description of moral obligation bonds.

MORTGAGE LEASE-BACK REVENUE BONDS

Description: Mortgage lease-back bonds are revenue bonds issued by a State or local authority where the revenue stream underlying the bonds are lease payments by another public entity, for example, a municipal unit of government. Such bonds typically are used for land or other real property transactions. Lease or mortgage payments to retire bond investor debt are made through annual budget appropriations, which may be supplemented by fees generated by the use of the leased property. At the end of the lease or mortgage terms, the governmental entity assumes ownership. Bonds typically are tax-exempt.

Actual Use: Conventional mortgage-backed bonds have been used extensively by the housing industry, such as Fanny Mae and State housing authorities, as well as for school and hospital construction. For environmental purposes, mortgage lease-back revenue bonds have been used in instances where the public agency, usually a local government, lacks the capital funds or debt capacity to make an outright purchase of land or real property, and thus leases the item from the capital provider which typically is a nonprofit entity, such as a 501(c)3 foundation, set up by the local government. For example, a park foundation may purchase land and then lease it to local government, typically a special park district, such as was the case in Johnson County, Kansas.

Potential Use: Mortgage lease-back bonds could e used more widely for land purchases, such as for brownfields, land on which an environmental facility is to be constructed, open space, historic sites and buildings, trails and bikeways, and other lands. Similarly, nonprofit foundations and land trusts could make land acquisitions through the use of these bonds, as long as the governmental entity promises to make timely lease or mortgage payments through appropriations or specific revenue dedication. Some redevelopment costs could be financed through the bond.

Advantages: Benefits pertain mainly to be the ability of local governments to proceed with land acquisitions or project construction when they do not wish to use condemnation powers or general obligation bonds, but have insufficient funds to make such purchases in a timely manner, particularly when land is threatened by potential development. The revenue bonds are less often subject to voter approval than general obligation bond.

Limitations: Using a bond is always more complicated and expensive that an outright purchase. Local support must exist to help ensure lease payments.

Reference for Further Information: The Trust for Public Land, *Greensense: Financing Parks and Recreation*, Spring 1997, Phyllis Myers, editor, San Francisco CA, Telephone: 800-714-LAND, Internet: **http://www.tpl.org/tpl**.

PRIVATE ACTIVITY BONDS

Description: "Private activity" or "Exempt" is a term now used to describe industrial development and similar bonds which meet one of a number of test under federal tax law measuring private involvement in a bond financing. The most commonly used definition includes bonds which meet both the private business use test and the private payment definition. The private business use test is met when no more than ten percent of bond proceeds are used by entity other than a State or local government unit. The private payment test is satisfied when no more than ten percent of debt service on the bonds is directly or indirectly paid or secured by a private entity. Most of these restrictions flow from the 1986 Tax Reform Act.

Actual Use: State and local bonds meeting the definition of private activity bonds may be issued on a tax-exempt basis if issued for specifically identified purpose and a myriad of specific rules are satisfied. Tax-exempt private activity bonds (qualified or exempt bonds) may be issued for the following purposes: airports; docks, and wharves; water and sewerage, certain solid waste disposal, and qualified hazardous waste facilities; certain public housing; facilities for the furnishing of local electric energy or gas, local district heating and cooling facilities; mass commuting and high-speed intercity rail facilities; certain improvements to hydroelectric generating facilities; student loans, certain redevelopment and industrial development activities; facilities for use by 501(c)(3) charitable organizations; and enterprise zone facilities. In addition, small-issue IDBs may be issued to finance, manufacturing facilities and farming property.

Potential Use: Private activity bonds also could be used for financing brownfields activities.

Advantages: Qualified private activity bonds provide funding at tax-exempt rates of interest which should be lower than most alternative financing mechanisms. Although interest on such bonds is exempt from the regular income tax, interest on the bonds (other than for bonds issued for 501(c)(3) charitable organizations) is an item of "tax preference" for purposes of the alternative minimum tax.

Limitations: Bonds meeting the definition of private activity bonds may only be issued on a tax-exempt basis if, among other requirements, room is available under the particular State's volume cap. Federal law imposes a limit on qualified private activity bond issuance for each State of $50 per capita or $150 million, whichever is greater. Private activity bonds issued for airports, docks, wharfs, municipally-owned solid waste disposal facilities, and facilities used by 501(c)(3) charitable organizations do not require a volume cap allocation.

Reference for Further Information: Heide, Susan C., Klein, Robert A., and Lederman, Jess, editors, *The Handbook of Municipal Bonds*, Probus Publishing, 1994.

REVENUE BONDS

Description: Revenue bond is a broad term used to describe bonds on which the debt service typically is payable mainly from revenue generated from the operation of the project being financed, or from other non-property tax sources. They may be issued by States or local governments, or by an authority, commission, special district or other unit created for the purpose of issuing bonds for facility construction, and typically are tax-exempt. State Revolving Fund (SRF) bonds and private-activity industrial development bonds are types of revenue bonds, as are others which derive their basic characteristics from revenue bonds, such as mortgage lease-backed bonds.

Actual Use: Revenue bonds now account for the clear majority of municipal bonds used to finance infrastructure in this country, including for water, sewer, and solid waste. Issued by all levels of government, revenue bonds may be preceded by the creation of a special district defining the geographical boundaries, as well as a public authority issuing and responsible for the bonds. Because the bond payment is secured mainly by the revenue pledge, additional covenants and mortgages may be used and feasibility studies required. Bond interest rates may be slightly higher for revenue compared to general obligation bonds, and even higher for taxable revenue bonds.

Potential Use: These bonds may finance construction of any environmental facility which generates future payments from its use, such as user fees, tolls, concession fees, and rental or lease-back payments.

Advantages: Revenue bonds have grown in popularity primarily because they are free from the requirements of general obligation bonds, which must be approved by voters, are subject to debt ceiling limitations, and may carry other restrictions covering principal and interest repayments. In contrast, revenue bonds are issued by special authorities and districts, created by local legislative bodies, and do not count against debt ceilings, although the national rating agencies take this into account in financial capability analyses. Revenue bonds can be issued in a timely manner, and debt can be specifically structured to meet project needs. Level annual debt payments ensure that future as well as present users of the new facilities will pay, thus enhancing equity.

Limitations: For some jurisdictions, the issuance of revenue bonds is more complicated. In New York, special revenue authorities must be created by the State legislature, and the State comptroller approves revenue bonds over a set amount. Public authorities remove direct control over spending (including approval of user fees) from local legislative bodies**.** Thus, political control is exercised indirectly via the appointment of board and authority members. Some localities strongly resist the creation of revenue authorities and special districts.

Reference for Further Information: The Bond Market Association, *Fundamentals of Municipal Bonds*, Fourth Edition, 40 Broad Street, New York, New York, 10004, 1990.

SHORT-TERM MUNICIPAL BONDS

Description: Historically, the phrase "short-term municipals" referred to short-term municipal bonds and to short-term securities known as notes. There are two main types of notes, anticipation notes and general obligation notes. Both types of notes are often used for the same purposes. All of these instruments generally have maturities ranging from a few months to a few years, have fixed interest rates, and are issued in anticipation of a bond issue, grant proceeds, or tax collections.

In the 1980s a new, broader class of "short-term municipals" were developed to address high interest rates and interest rate volatility -- and the resulting investor worries about fluctuations in the value of portfolios and issuer concerns about the increasing costs of borrowing capital. These new "short-term municipals" are known as demand obligations or variable rate demand obligations. They are based on a simple idea. Governments issue long-term bonds, but they have yields determined as if they are short-term notes. The bond holders can demand purchase of their bonds at par (the principal due at maturity) , plus accrued interest at regular predetermined intervals. Bond demand periods can be daily, weekly, monthly, quarterly, semiannually, or annually. In addition, the interest rate varies at predetermined intervals. Tax-exempt commercial paper represents another new type of short-term instrument. This is simply a short-term promissory note issued for up to 270 days. It is often used instead of anticipation notes because of greater flexibility in determining and setting both maturities and rates.

Actual Use: State and local governments issue billions of dollars a year in "short-term municipals" of all types, traditional and new, to meet short-term capital needs for design and initial construction while waiting for long term funding revenues. These short-term instruments are issued to fund many different activities. Examples include housing and urban renewal, water and wastewater project start-ups, transportation projects, school district operations, and temporary agency operating deficits caused by seasonal variations in tax collections.

Potential Use: Short-term municipals can be used to meet short-term gaps in project finance and operations when they occur, and until the final sources of funds become available.

Advantages: Short-term municipals bonds provide issuers with immediate funds for capital and operating needs.

Limitations: Short-term municipals have higher interest rates and funding is temporary.

Reference for Further Information: *Fundamentals of Municipal Bonds*, Fourth Edition, issued by The Bond Market Association, 40 Broad Street, New York, NY 10004-2373.

SPECIAL ASSESSMENT BONDS

Description: Special assessment bonds are bonds issued by local governments and/or special authorities that are secured by some type of special taxes, charges, or fees. The bonds are sold to finance specific public infrastructure improvements that directly benefit the property owners in limited, identifiable areas. Assessments are levied on properties in the areas in direct relation to the benefits received from the projects. The assessments are based on property measurement systems related to the benefits such as street front-footage or square footage owned. The system for collecting assessments is usually tied to the collection of *ad valorem* property taxes. Most special assessment bonds have maturities of 15 years or less (see the next tool, **Special Tax Bonds**).

Actual Use: Examples of projects commonly funded by special assessment bonds include the construction maintenance, and/or repair of water and sewer lines, storm drains, sidewalks, roadways, and lighting improvements. However, special assessment bonds have also been sold by communities and/or authorities to finance public improvement ranging from parks to bicycle paths to major landscaping work to parking lots.

Potential Use: Special assessment bonds could be used more widely to finance local or even regional public-purpose projects that benefit specific areas. They could be an excellent tool to fund projects that provide improved environmental services and benefits, especially ones that are community- and ecosystem-based.

Advantages: The great attraction of special assessment financing is that it is very equitable. Only those individuals, private firms, and other groups who directly benefit from the specific public improvements through improved services, quality of life, and/or increased property values are responsible for paying for them.

Limitations: Special assessment bonds are normally used only for the construction of a project and not for maintenance, which can prove to be quite expensive in its own right over the long-term. These bonds have speculative elements which can be mitigated through backup measures such as limited tax increase authority, utility revenue pledges, and cash flows. Because only those who benefit from the projects must pay, these bonds may require high assessments which small and economically disadvantaged communities may not be able to afford.

Reference for Further Information: *Standard and Poor's Municipal Finance Criteria,* Standard and Poor's Corporation, 25 Broadway, New York, NY 10004. Telephone Number: 212-208-1146.

SPECIAL TAX BONDS

Description: A special tax bond combines some of the characteristics of both revenue bonds and general obligation bonds. Such bonds, usually issued by local governments to finance a particular type of facility, are backed by the pledge of proceeds from a specific tax source. However, they differ from "Special Assessment Bonds" described previously since tax rates are a flat percentage or rates as opposed to being proportional to the benefit being received from the new project by individuals paying the tax.

Actual Use: Special tax bonds have long been issued by highways authorities to finance highways, roads and bridges and are paid for out of highway taxes. For environmental purposes, particularly the financing of parks and open space, localities recently have used special tax bonds financed out of local sales tax surcharges, or even property tax surcharges. Such surcharges may be approved for a limited time period or to collect a specified amount of money.

Potential Use: The potential for environmental financing from special tax bonds is growing, particularly when used for local parks, nature facilities, greenways and trails, natural lands acquisition, and similar land-based projects. This growth is primarily because of the increased local popularity of such environmental projects.

Advantages: The advantages of special tax bonds are that they may have strong local support, in fact they have to be popular for a municipality to go through the steps of seeking State approval and local voter agreement to the special tax to begin with. Community-based environmental protection is greatly enhanced by the use of these bonds. Bond proceeds sometimes have been dedicated to local land trust to purchase natural lands on a revolving basis and have been further leveraged through State and private sector matching grants. When the local sales tax is used, local residents benefit from non-residents paying the tax as well. When taxes are temporary, to collect a fixed sum of money, the cost/benefit relationship is close.

Limitations: Gaining State and local agreement to tax add-ons is anything but a foregone conclusion, and often has proven impossible. The taxes usually are highly regressive.

Reference for Further Information: See **Section 1.A.1.:** *Local Sales Taxes, Personal (Tangible) Property Taxes, and Real (Ad Valorem) Property Taxes*. See also **Section 8.:** *Tools To Pay For Community-Based Environmental Protection*. Special sales taxes are described in the Bond Markets

Association's *Fundamentals of Municipal Bonds*, Forth Edition, New York, 1990.

STATE REVOLVING FUND (SRF) REVENUE BONDS

Description: SRF revenue bonds are issued to expand, or leverage, loan funding sources for local projects which meet the eligible project criteria under the Clean Water and Drinking Water SRFs (CWSRF and DWSRF). SRF tax-exempt revenue bonds, issued under the bond leveraging approach are secured first by local GO or revenue bond pledges as collateral and loan recipient repayments, and by SRF debt reserve funds underlying the revenue bond. The two basic leveraging approaches used by SRFs are described in **Section 3: Enhancing Credit**, "SRF"Bond Leveraging". SRF revenue bonds also may be issued to provide for the required 20% State match to federal capitalization grants, and sometimes are issued on a taxable basis to avoid complicated arbitrage rebate requirements.

Actual Use: To date, over half of the CWSRFs have bond leveraged their funds with SRF revenue bonds. Typically this has occurred through bond pools, and over five CWSRFs have received AAA bonds rating. Single issue revenue bonds may be issued to very large municipalities, such as New York City. The bond leveraging approach has resulted in 2-3 times more loans being made in the near term compared to the direct loan approach, and has enable many CWSRFs to meet municipal wastewater treatment demands and thus fund other projects such as stormwater, solid waste landfills, and source water protection as well as estuary and agricultural non-point source improvements. Several States already have leveraged their DWSRFs. The SRF model has been adopted by Congress in the National Highway System Designation Act of 1995, which establishes a State infrastructure bank program for transportation projects, and has been discussed in Congress for school construction.

Advantages: Revenue bond leveraging allows for more projects to be funded in the near term compared to the direct loan approach. Although SRF revenue bonds are issued at market rates, local borrowers receive loans at below market interest rates, subsidies provided in part by investments of the large bond debt reserve funds. Because of their high asset to liability ratio, SRF revenue bonds are high quality credits and provide market access to borrowers regardless of their individual credit ratings.

Limitations: SRF borrowers must comply with national SRF program requirements, such as Davis Bacon and a limit of 20 years for loan repayments, unlike other revenue bonds which may extend to 30 years. Bond leveraging over the long run does not result in loan repayment interest earnings to the SRF fund, unlike direct loans.

Reference for Further Information: Merrill, Lynch & Co., *Guide to State Revolving Fund Revenue Bonds*, by Christopher Mauro, December 1995.

STRUCTURED MUNICIPAL BONDS

Description: All municipal (State and local government) debt issues have a particular structure. However, the structuring of bonds has come to refer to new financing techniques and credit substitutions where the financing objectives of the issuer and the investment requirements of the purchaser can be achieved simultaneously. In this context, structured municipal bonds can provide the issuer cash-flow oriented debt financing. This approach uses loan pooling, cash flow allocation and credit enhancement to create multi-class municipal bonds with differing characteristics designed to attract investors with different needs. Although federal tax and securities laws limit the nature of the application of structured financing techniques in the design of municipal bonds, the principles are clear. Securitization of diverse municipal cash flows from various user fees, tax levies, and other payments is similar to residential mortgage-backed securities. Structured municipal bonds rely on multiple tranches (pieces of an asset) for structuring principle and interest payments into different classes. They also may have credit enhancements provided by letters of credit (LOC). An example of structured municipals is a collateralized bond obligation (CBO), which is an asset-backed security with a portfolio of bonds as collateral. The sponsor transfers the collateral into a special purpose vehicle, such as a trust or corporation, which has no other assets. A typical CBO has more than one tier or tranche and the senior tranche has first claim on the collateral's cash flows to cover it's payments. The junior tranche, which has more risk of default, has second claim. The equity tranche claims the residual that is left over after satisfying all other claims against the underlying cash flow.

Actual Use: The structuring of pools of previously issued tax-exempt bonds has been practiced for some time now. More recently, pools of municipal property tax liens have been securitized and sold with relatively high ratings.

Potential Use: Securitization of State Revolving Loan fund portfolios for sale to private investors increases the availability and lowers the cost of capital. With securitization, loan repayments are sold to a trust that finances the purchase by selling securities to investors. Returns to investors in these securities could be structured by maturity, risk, and flow of funds priorities.

Advantages: Structured municipal bonds offer opportunities for more efficient means of raising capital for environmental projects.

Limitations: Structured debt transactions tend to be complex, reflecting the challenge of mitigating risk to investors while still providing financial benefits to the issuer.

Reference for Further Information: Government Finance Officers Association, 180 N. Michigan Ave., Suite 800, Chicago, IL 60601; Phone: 312-977-9700; Fax: 312-977-4806; Standard and Poor's Public Finance, Structured Finance Group, 25 Broadway, NY, NY 10004; Phone: 212-208-8000; Fax: 212-412-0475. *Getting Secure* by Jane Katz at www.bos.frb.org/economic/nerr/katz97_3.htm**.**

TAX INCREMENT BONDS

Description: Tax increment bonds, which differ slightly from special assessment bonds, are local tax-exempt bonds issued for special assessment or improvement districts where the benefit from the project being financed is specifically manifested through higher property values. The tax increment financing, termed TIF, generates revenue for bond repayment from the incremental change in property values caused by the financed improvement. After creating a special district, two set of tax records are maintained - one that reflects the property's value before the enhancement, and a second that reflects growing assessed values (and payments) after the enhancement and serves as the source of bond repayment.

Actual Use: TIF has been most frequently for local urban redevelopment and sporting facilities, but water, stormwater and wastewater treatment have become more common uses in recent years. For example, tax increment bonds for environmental improvements have been used frequently in rapidly growing States such as Florida and Arizona. These bonds have not been used by States and, indeed, often are prohibited for State use by State constitutions.

Potential Use: Tax increment financing could be used more widely for the acquisition of for park and open spaces, lake and estuarine protection, for recycling facilities and brownfields clean-up and redevelopment.

Advantages: TIF has the advantage of being able to define specifically the geographical boundaries and benefits of an environmental improvement. It ensures that those individuals or businesses actually benefitting from the improvement will help pay for it, thus increasing equity. TIF bonds for revitalization projects bonds may be backed by revenue pledges in addition to anticipated increases in property value, called "value capture", which makes them highly leveraged.

Limitations: TIF requires the ability to pass local ordinances and create special financing districts, which often has proven difficult. Tax increment bonds require effective administrative systems for property value tax accounting that may be costly and complicated to manage over time. Property tax assessments are somewhat subjective since they are based on predictions, and assessments must be fully documented, subject to strict record-keeping, and periodically reassessed.

Reference for Further Information: Report from The Governor's Panel, *Financing Alternatives for Maryland's Tributary Strategies*, University of Maryland Sea Grant College, University of Maryland Environmental Finance Center, August 1995.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR BONDS

Criteria/ Bond	Actual Use	Revenue Size	Revenue Cost/ Savings	Administrative Ease	Equity	Financial Leveraging	Environmental Benefits
Advance Refunding	High	High	High	Low	Low	Mod.	Low
***Anticipation Notes**	High	High	High	High	Mod.	High	High
Appropriation-Backed	Low	Low-Mod.	Low	Mod.	Low	Mod.-High	High
Asset-Backed Revenue	Mod.	Mod.	Mod.	Mod.	Mod.	Mod.	High
Capital Appreciation/Zero Coupon	High	High	High	Mod.	Low	Mod.	Mod.
***Certificates of Participation**	High	Mod.	Mod.	Mod.-High	High	High	Mod.-High
Derivatives	Mod-	High	High	Low	Low	Mod.-	Low
***Double-Barrel**	Mod.	High	High	Mod.	Mod.	High	High
***General Obligation**	High	High	High	Low	Mod.	Low	High
Mandate	N.A.	N.A.	High	Mod.	High	Low	High
Mini/ Baby	Low	Low	High	Low	High	Mod.	High

COMPARISON MATRIX continued

Criteria/ Bond	Actual Use	Revenue Size	Revenue Cost/ Savings	Administrative Ease	Equity	Financial Leveraging	Environmental Benefits
***Moral Obligation**	Mod.	High	Mod.	Mod.	Mod.	Mod.	High
***Mortgage Lease-Back Revenue**	Mod.	Mod.	Mod.	Mod.	Mod.	High	High
***Private Activity**	High	Mod. - High	High	Mod.	Mod.	Mod.	High
***Revenue**	High	High	Mod.	Mod.	Mod.	Mod.	High
***Short-Term Muni**	High	High	High	Mod.	Mod.	High	High
***Special Assessment**	High	High	Mod.	Mod.	High	Mod.	High
***Special Tax**	Mod.	Low-Mod.	Mod.	Low	Mod.-High	High	High
***SRF Revenue**	High	High	High	Mod.	High	High	High
Structured Municipal	Low	Mod.	Mod.	Low	Mod.	Mod.	Low
Tax Increment	Low	Low	Mod.	Low	High	Mod.	High

High - High Use (over 25 States, many localities or private sector); revenue over $2 billion annually nationwide; criteria score well (low interest rates, straight forward, flexible, specific)

Mod. - Moderate use (10-25 States, many localities/private); criteria score in medium range

Low - Low or rare usage; criteria score poorly

* Star indicates best rated mechanisms

2.B. LOANS

2 B. LOANS

Description: A loan is the temporary provision of a specific amount of funds up-front for an expenditure, that must be repaid in a set amount time, typically with interest. The rate of interest is established prior to the loan or, in the case of commercial loans, determined through negotiations.
Private loans, typically made by banks and other financial institutions, provide capital for a wide variety of environmental projects within a range of market interest rates. Typically, larger and more financially secure customers receive the best interest rates, compared to smaller borrowers. However, environmentally risky projects, such as those involving hazardous waste, also carry higher interest costs. At present, commercial loans account for the largest portion of private sector capital financing and, depending on economic conditions, are a highly expandable source of funding.

Government loan programs provide capital funds to a select number of governments, non-profit organizations, and private businesses. Like grants, government loans are made with very specific goals in mind, often are accompanied by specific mandates, may be less than 100% of total project costs, and are limited by legislatively appropriate dollar amounts. Unlike commercial loans, government loans often are made available at subsidized (lower than market) interest rates for projects that meet eligibility criteria, or may be interest-free, e.g., some State Revolving Fund (SRF) loans. Many government loan programs are targeted to small, economically distressed, and/or rural areas, which need the most assistance in acquiring project capital. In general, small, disadvantaged borrowers receive the lowest interest rates, compared to the reverse for commercial loans.

The SRF program is clearly the largest government environmental infrastructure loan program available today, far surpassing and sometimes eclipsing other State loan programs. While the SRF program is capitalized by a federal capitalization grant (like a block grant), it is presented in here as a State loan program. With the exception of the federal Department of Agriculture and Small Business Administration (discussed in Section 10) loan programs, direct federal loan programs are few in number.

Advantages: Government loan programs frequently provide loans at lower interest rates than those that are available for commercial loan and bond financing. Loans involves fewer and lower transaction costs than bonds, and may be acquired without voter approval. Smaller, disadvantaged communities may fund government loans an easier and less costly route than bonds or commercial loans. Moreover, loans from different sources may be co-mingled, including with grant funds. Loans requiring matching funds are highly leveraged. Both SRF and commercial loans are especially flexible as to application deadlines and cost overruns.

Limitations: Government loans are subject to the availability of approved funds, and competition between borrowers can be keen. Such loans may carry onerous governmental mandates, such as SRF loans for which borrowers must comply with federal "cross-cutters" such as Davis Bacon. Most federal loans have complicated application procedures and deadlines. Small, disadvantaged communities may be unable to borrow even at zero interest. Other than SRF loans, government refinancing and short-term loans are rare, and recipients may not be able to finance pre-construction costs on their own. Commercial loans, while widely available and much more flexible, generally will have higher interest costs than tax-exempt bonds.

Summary: Government loans, particularly SRF loans, are a large source of infrastructure capital, and monies appropriated for that purpose, and may carry specific government requirements and limitations. Small, disadvantaged communities receive the most favorable interest rate treatment, and primarily by the private sector are a large source of both construction and operating capital, and loan terms can be highly flexible and tailored to meet specific needs, including short-term needs. However, commercial loans are expensive particularly for small projects.

LIST OF LOANS
(In Alphabetical Order)

1. Agriculture: Rural Business-Cooperative Service -- Economic Development Loans
2. Agriculture: Rural Housing Service (RHS) – Community Facilities Loans
3. Agriculture: RHS – Housing Site & Self-Help Housing Land Development Loans
4. Agriculture: Rural Utilities Service -- Water and Waste Disposal Systems Loans
*5. CoBank (National Bank for Cooperatives Loan Program)
*6. Co-Funding
*7. Commercial Loans
8. Direct Source (Equipment) Financing
*9. EPA: State Revolving Funds - Clean Water
*10. EPA: State Revolving Funds - Drinking Water
11. Federal Financing Bank
12. Federal Loan Programs
*13. North American Development Bank
*14. Private Investment
15. State Loan Programs
*16. State Revolving Fund (SRF) Pre-Financing and Short-Term Loans
*17. SRF Private Beneficiary Loans - Clean Water

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

DEPARTMENT OF AGRICULTURE
RURAL BUSINESS-COOPERATIVE SERVICE
ECONOMIC DEVELOPMENT LOANS

Description: These zero interest loans are used to promote rural economic development and job creation projects. Loans may fund project feasibility studies, start-up costs, incubator projects, and other related reasonable expenses. Eligible applicants include electric and telephone utilities with current rural electrification or rural telephone bank loans or guarantees outstanding.

Actual Use: Examples of projects funded include the establishment or expansion of factories or businesses, medical facilities, water and sewer industrial development parks, business incubators for rural economic development activities, and other jobs projects. Most of the environmental projects funded involve water or wastewater systems.

More than $12,275,000 in loans were obligated in Fiscal Year (FY) 1997 with assistance ranging from $10,000 to $750,000 and averaging $375,000. Projected loan obligations for FY 1998 and 1999 are approximately $25 million and $15 million respectively. Between May 1989 and September 30, 19976, 474 economic development loans totaling $83.2 million were made.

Potential Use: These loans could be used to help finance directly and leverage other capital for additional wastewater and drinking water utilities, and to fund non-point source improvements. Depending on interpretation of authorizing legislation and regulations, they might also fund solid waste and waste-to-energy facilities, as well as brownfields cleanup and redevelopment.

Advantages: The loans are inherently equitable since they fund projects that would not otherwise be funded for an often needy segment of society. Federal funding for this program has been relatively stable and loan application procedures are not difficult.

Limitations: The maximum loan amount is $750,000. The maximum loan term is ten years at a zero interest rate. Loan recipients must provide supplemental funds totaling 20 percent of the assistance received. Environmental projects compete with many other types of projects for loans.

Reference for Further Information: U.S. Department of Agriculture, Rural Business - Cooperative Service, 14th & Independence Avenues, SW, Rm. 5405-South Building, Washington, D.C. 20250, Internet web site at **http://www.rurdev.usda.gov/rbs/index.html**. Information on this loan program can also be found in the *Catalog of Federal Domestic Assistance* and its World Wide Web site at **http://aspe.os.dhhs.gov/cfda/ideptagr.htm**.

DEPARTMENT OF AGRICULTURE
RURAL HOUSING SERVICE
COMMUNITY FACILITIES LOANS

Description: The Department of Agriculture's Rural Housing Service provides loans to help finance community facilities that provide essential services to rural residents. Eligible applicants include city, county, and State agencies; political and quasi-political subdivisions of States, associations and corporations; Tribes; and private nonprofit corporations.

Actual Use: These loans are used to build, enlarge, extend, or otherwise improve community facilities providing safety, transportation, community, social, cultural, and health benefits; industrial parks; access ways; and utility extensions. They have been used to buy fire fighting equipment, renovate hospitals, and build rural health clinics, municipal buildings, and schools.
In Fiscal Year 1997, 468 direct loans and 80 guaranteed loans were made totaling approximately $130 million and $64 million, respectively. Direct loan amounts ranged from $50,000 to $2,500,000 and averaged $447,521. Guaranteed loans ranged from $100,000 to $2,500,000 and averaged $905,594. Rural Housing Service estimates for Fiscal Years 1998 and 1999 are for direct loans of about $206 million and $200 million and for guaranteed loans of $153 million and $210 million.

Potential Use: Depending on interpretation of applicable legislation and regulations, these loans could be used to finance brownfields cleanup and reuse costs relating to the redevelopment of contaminated community facilities. They might also be used to pay for encapsulating and/or removing asbestos during the renovation of community facilities. Water and wastewater line extensions could potentially be funded using these loans.

Advantages: These loans are at zero interest and targeted to areas that are often economically disadvantaged. Equity and leveraging potentials are high, since State revolving funds, as well as HUD and EDA grants or loans, could be combined with these loans.

Limitations: Even with a zero interest rate, these loans must be repaid. Assistance is limited to community facilities in rural areas. The loans can be used to fund all development costs related to the community facilities, not just environmental costs. The competition for funding from the many different types of non-environmental projects is great.
Reference for Further Information: U.S. Department of Agriculture, Rural Housing Service (RHS), 1400 Independence Avenue, SW, Washington, DC 20250, Telephone: 202-690-1727, RHS home page is on the World Wide Web at **http://www.rurdev.usda.gov/agency/rhs/rhs.html**. Information on this loan program is also available in the *Catalog of Federal Domestic Assistance* and its World Wide Web site at **http://aspe.os.dhhs.gov/cfda/ideptagr.htm**.

DEPARTMENT OF AGRICULTURE
RURAL HOUSING SERVICE
HOUSING SITE & SELF HELP HOUSING LAND DEVELOPMENT LOANS

Description: The Department of Agriculture's Rural Housing Service provides this assistance to public or private non-profit organizations that provide developed housing sites to qualified borrowers in open country and towns with less than 10,000 people (or under certain conditions in areas up to 25,000 people). The housing sites must be sold on a cost development basis to low income families, cooperatives, nonprofit organizations, and public agencies.

Actual Use: Loans are used to purchase and develop adequate housing sites in rural communities, including any needed equipment which becomes a permanent part of the development. Loan funds may be used to pay for water and sewer facilities, if unavailable; needed engineering, legal fees, and closing costs; and landscaping and related facilities such as walks, parking areas, and driveways. Three loans were made in Fiscal Year 1997 and loan obligations totaled $1,192,334.

Potential Use: The U.S. Department of Agriculture projects that this loan program will grow dramatically. The Department estimates that loan obligations for Fiscal Years 1998 and 1999 will be $1,187,000 and $10,000,000 respectively.

Advantages: These loans could be more aggressively used to ensure that adequate water and wastewater (sewer) services are provided when housing is developed in lower population areas for use by low-income residents.

Limitations: Loans can be used to fund all development costs related to housing, not just for environmental facilities. Land purchase costs eat up a significant portion of funds and there is competition for funds use for other non-environmental purposes. All housing developed with these loans must be used by low and very low income families in generally rural areas. Finally, the program is a relatively small one.

Reference for Further Information: U.S. Department of Agriculture, Rural Housing Service (RHS), 1400 Independence Avenue, SW, Washington, DC 20250, Telephone: 202-690-1727, RHS home page on the World Wide Web is at **http://www.rurdev.usda.gov/agency/rhs/rhs.html**. Information on this loan program can also be accessed in the *Catalog of Federal Domestic Assistance* and its World Wide Web site at **http://aspe.os.dhhs.gov/cfda/ideptagr.htm**.

DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE
WATER AND WASTE DISPOSAL SYSTEMS LOANS

Description: These loans provide assistance for meeting rural water and waste disposal needs. Funds may be used to install, repair, improve, or expand water and waste disposal facilities. Eligible applicants include political subdivisions of a State (municipalities, counties, districts and authorities), associations, cooperatives, nonprofit corporations, and federally recognized Tribes.

Actual Use: Projects have included construction of water systems involving lines, wells, pumping stations, storage tanks and treatment plants; improvements to water systems such as new lines, wastewater facilities and booster pumps; renovation of water systems including distribution lines, wells and pressure tanks; construction of wastewater collection and treatment systems; replacement of wastewater plants and upgrade of collection lines; repair of wastewater lines and construction of lift stations; and purchase of landfill sites and trucks/equipment for solid waste disposal. Loan obligations in Fiscal Year (FY)1997 totaled $480,000. FYs 1998 and 1999 loan obligations are projected at $0 with program funds being limited to grant awards (see **Section 2.C., Department of Agriculture -- Rural Utilities Service Water and Waste Disposal Systems Grants**).

Potential Use: Loans could be used to acquire capital to finance additional wastewater, drinking water, and solid waste facilities. Depending on interpretation of legislation and regulations, the grants might finance waste-to-energy and recycling facilities, and non-point source programs.

Advantages: Equity and leveraging possibilities are high, since State revolving funds, as well as HUD and EDA grants or loans, can be combined with these loans. State revolving funds can pre-finance these loans (and/or grants), thus covering up-front design and initial construction costs.

Limitations: Loans are paid out only after construction is completed. Projects cannot service areas in towns of over 10,000 people. Grants, as opposed to loans, are made only if needed to reduce user charges to a reasonable level, and only after loan funds are expended. For a grant of up to 70 % of eligible costs, service area median household income must be below the poverty level or below 80% of the State non-metropolitan median household income (whichever is higher).

Reference for Further Information: U.S. Department of Agriculture, Rural Utilities Service (RUS), Stop 1548, 1400 Independence Ave., SW, Washington, DC 20250-1548, RUS home page is located on the World Wide Web at **http://www2.hqnet.usda.gov/rus/water/programs.htm**. Information on the loans is also available in the *Catalog of Federal Domestic Assistance*, and at the Catalog's Web site, **http://aspe.os.dhhs.gov/cfda/ideptagr.htm**.

COBANK
(NATIONAL BANK FOR COOPERATIVES LOAN PROGRAM)

Description: CoBank is a federally-chartered and regulated private financial institution that serves the approximately 2,400 local, regional and national agricultural cooperatives and rural utilities systems across the country. CoBank operates as a financial cooperative and is part of the Farm Credit System, a government-sponsored enterprise to assist agriculture and other business in rural areas. CoBank's customers capitalize the bank by providing equity capital based on borrowings. Earnings of the bank are distributed in the form of patronage refunds based on loan usage.

Actual Use: CoBank offers a broad range of flexible loan programs and specially tailored financial services. For environmental projects, it provides long-term, interim, and refinancing loans at competitive rates to credit-worthy water and wastewater systems in unincorporated areas or communities with less than 20,000 people. Loans issued by CoBank have terms extending up to 20 years, with fixed or variable interest rates. In cooperation with CoBank also provides a cash investment service. In cooperation with the National Association of Water Companies, CoBank operates a Small Loan Program that provides loans of $50,000 to $500,000 through a streamlined application process.

Potential Use: Loans are available for interim construction or long-term financing of plant and equipment of water and waste disposal systems.

Advantages: CoBank is a national cooperative(s) bank with very competitive interest rates and flexible terms.

Limitations: Loan applicants must meet eligibility requirements (population of 20,000 or less) and a test of acceptable credit quality. CoBank provides funding for many types of projects, not just environmental ones.

Reference for Further Information: The U.S. EPA Environmental Financial Advisory Board (EFAB) advisory: *Small Community Financing Strategies for Environmental Facilities*, August 9, 1991 contains a description of the CoBank loan program. EFAB can be reached via USEPA's Environmental Finance Program at 401 M Street, SW, Washington, DC 20460, Mail Code: 2731R. Contact: Alecia Crichlow at crichlow.alecia@epa.gov. For direct information on CoBank and applications for its loan programs, contact: CoBank National Bank for Cooperatives, P.O. Box 5110, Denver, CO 80217, Phone: 303-740-4051 or 1-800-542-8072.

CO-FUNDING

Description: Localities may combine federal and State loans in the same project, including grant funded projects. Project financing may be arranged by the locality or the State. Co-funding opportunities are particularly applicable and advantageous to small communities, for wastewater, drinking water, nonpoint sources and other environmental projects.

Actual Use: All States and many localities co-mingle sources of funds, both loans and grants. One of the most prevalent uses is SRF-arranged wastewater project co-financing for small, disadvantaged communities. This approach takes advantage of the SRFs' flexibility to pre-finance loans prior to construction, which federal agencies cannot, as well as act as a financial coordinator. For example, Waverly, New York, facing a $2.7 million wastewater treatment plant and collection sewer project, qualified for a $900,000 SRF interest-free loan and received commitments from the federal Rural Utilities Service for a $1.3 million grant and $50,000 loan, and from HUD for a $400,000 grant. With these commitments, the town obtained a short-term, interest free, $2.7 million SRF loan, which will be paid off by long-term SRF, RUS and HUD financing. Other federal dollars that could be combined in similar projects include economic development assistance grants, and State monies may be available from environmental bonds and legislative appropriations such as for solid waste.

Potential Use: The potential use of co-funding for environmental projects is large, especially, if an agency is willing to take the lead in organizing and harmonizing different funding sources, cycles and procedures. This may require regular inter-agency meetings as done in New York. It may be possible to pre-qualify applicants (which solves problems caused by different agencies' application time periods), and to consolidate or simplify individual grant/loan applications. It is expected that the Drinking Water SRF program also will use the co-funding approach for small localities.

Advantages: Co-funding can make project implementation possible, and increases access and equity for clients, particularly smaller communities. The total number of communities that can be served is also increased. Co-funding overcomes specific restrictions which apply to individual programs, for example, federal agencies rarely provided money up-front, and have funding restrictions (e.g., RUS rarely award grants over $1 million and loan interest rates do not vary with affordability factors; HUD grants are capped annually at $400,000). Co-funding helps overcome uncertainties in individual agency annual budget fluctuations.

Limitations: Co-funding may be beyond the ability of a single community to arrange, since financing procedures differ so radically and the application process is tedious. Thus, without a lead agency at the State level to take charge, funding windows may close.

Reference for Further Information: Localities should consult State Self-Help programs, and Rural Community Assistance Programs, for more information.

COMMERCIAL LOANS

Description: Most commercial banks and/or financial institutions in the United States have public finance departments that operate to provide State, local and other governments with loans to finance a wide variety of capital projects and purchases.

Actual Use: States and local governments tend to use commercial loans where lower-interest financing is unavailable and/or to fill short-term financing needs in anticipation of revenues from other sources (i.e., so-called bridge loans). Commercial loans are usually provided at set costs keyed within a range of market-based interest rates.

Commercial lenders such as banks are very low-risk lenders and usually seek to protect themselves and their loans by securing collateral in one or more of three ways: primary collateral in the form of assets (preferably liquid), secondary collateral such as guarantees, and cash flow. For governments, some portion of future revenues or taxes often represents the ultimate security for commercial loans.

Potential Use: Commercial loans could also be used to finance privatized public-purpose environmental facilities and equipment that are ineligible for governmental bond financing, or for governments whose bonding capacity has been exhausted.

Advantages: The application process for commercial loans can be much faster than for government loan programs. Commercial lenders usually have no set eligibility criteria in the way that government loan programs do and may have no predetermined limits on the total amount of loan capital available.

Limitations: Generally, commercial loans have higher interest rates and less favorable payback terms than government-funded loan programs.

Reference for Further Information: Most commercial banks have public finance departments that will assist with inquiries on loan programs. Those that do not, can either handle inquiries from their general finance/loan operation or refer inquiries to bank that have public finance departments.

DIRECT SOURCE (EQUIPMENT) FINANCING

Description: With direct source financing the tax-exempt borrower receives equipment financing directly from the investor. This approach tends to streamline the borrowing process, simplifying documentation and minimizing intermediary involvement. In particular, it is not subject to the municipal securities disclosure requirements of Securities and Exchange Commission (SEC) Rule 15c2-12. Certain large institutional investors have public finance arms which work with tax-exempt borrowers to design financing programs to meet specific equipment needs at tax-exempt interest rates with flexible payment terms. Generally, reserve funds are not required and prepayment options are available throughout the term of the loan, rather than only on set call dates. Public bond offerings generally involve a more time consuming documentation process as well as the obligation to provide both continual notices of material events regarding the securities and annual financial information.

Actual Use: Equipment purchases are often accomplished with direct source financing, which is also called equipment financing. However, leasing has proven to be a very competitive alternative financing technique (see **Section 4.A., Tax-Exempt Lease**). Direct lenders often securitize equipment loans.

Potential Use: Direct source financing could be used to acquire equipment needed for environmental protection or production of environmentally friendly goods.

Advantages: Because it eliminates underwriter and rating agency fees, printing costs, and time-consuming documentation and disclosure processes, direct source financing can reduce front-end and total costs.

Limitations: Direct source financing is not practical for major facility projects, which require longer term funding due to the amounts needed.

Reference for Further Information: Government Finance Officers Association (GFOA), 180 North Michigan Avenue, Suite 800, Chicago, IL 60601, Phone: 312-977-9700; Fax: 312-977-4806, Internet: **www.gfoa.org**. General Electric Capital Public Finance, 8400 Normandale Lake Boulevard, Suite 470, Minneapolis, MN 55437; Phone: 800-346-3164; E-mail: gecapinfo@corporate.ge.com; Internet address: **www.ge.com/ capital/public/pf2.htm**.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
STATE REVOLVING FUNDS - CLEAN WATER

Description: Under Title 6 of the 1987 Clean Water Act, States receive federal monies to capitalize clean water revolving loan fund (CWSRF) programs. States must provide a 20 percent match to the federal funds. CWSRFs are authorized to make loans to localities to finance wastewater treatment facilities, nonpoint source pollution control activities and estuary program activities. Loans are made at low interest rates (0 percent to market rate) for up to 20 years. States can use loan funds to refinance previously executed debt obligations, guarantee local debt obligations, buy bond insurance for local debt obligations, or guarantee bonds issued by municipal and inter-municipal revolving funds. States may use up to 4 percent of the federal funds for administrative costs. States may set the criteria for determining which municipalities can access the loans and other fund uses each year.

Actual Use: All States have CWSRFs, and they increasingly are making loans for non-traditional wastewater projects. By mid-1997, fifteen States were funding nonpoint source pollution projects (including direct loans to farmers), six were funding stormwater projects, nine were funding landfill projects, five were funding septic system rehabilitation and replacement, six were funding estuary wetlands, stream restoration, and wellhead protection, many were funding sludge projects, and over half were funding combined sewer overflow projects. Some States have already used their own funds to finance revolving funds to assist localities with various capital projects. At least two States have made loans to acquire land or conservation easements to protect source water.

Potential Use: States are starting to apply the revolving loan fund concept to other media such as hazardous waste remediation, Superfund cleanups, brownfields redevelopment, biosolids reuse, highway and airport cleanups, and solid waste finance. USEPA has indicated the potential eligibility of wetlands acquisition, watershed protection, habitat restoration, and other new types of projects.

Advantages: The CWSRFs are able to provide localities with extremely low-interest loans at favorable terms. They can be considerably more flexible than commercial banks, as States can adjust interest rates and other loan terms to suit localities' ability-to-pay.

Limitations: The competition among applicants for access to revolving loan funds is intense in some States. Federal "cross-cutting" requirements that apply in using CWSRF monies can increase project costs. Some small communities may not be able to afford any loan. Loan terms are limited to 20 years, although there have been proposals to extend them to 30 years.

Reference for Further Information: U.S. General Accounting Office: *Water Pollution: States' Progress in Developing State Revolving Loan Fund Programs*, March 1991. Ohio Water Development Authority, *1995 Annual SRF Survey*. U.S. EPA, Office of Water, *Annual U.S. Clean Water SRF Assistance for Wastewater Treatment*, 1997.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
STATE REVOLVING FUNDS - DRINKING WATER

Description: The 1996 Safe Drinking Water Act Amendments authorize the funding of Drinking Water State Revolving Loan Funds (DWSRFs) to assist drinking water systems in financing the infrastructure costs of complying with the Act and to protect public health. The DWSRFs provide low cost loans to publicly and privately owned water systems, as well as nonprofit non-community ones, for up to 20 years (30 years for small, disadvantageds). States provide a 20 % match, and may use 4% of federal funds for administration. Refinancing (except for privates), loan guarantees, and principal subsidies (grants for small, disadvantageds) also are permitted. Eligible projects include expenditures to upgrade or replace drinking water infrastructure, distribution or storage facilities, integral land acquisition, planning and design, and systems restructuring (e.g., regionalization). Although States have considerable flexibility and may use up to 31% of federal capitalization grants in special set-asides, they must use 15% of that money for systems serving less than 10,000 people. States also must take steps such as local capacity building programs to receive certain federal dollars.

Actual Use: By the end of 1997, all States had set up DWSRFs and most had begun making loans. Because drinking water has never been funded to this extent, the demand has been very high. Some SRFs, such as in New York, are taking advantage of provisions permitting the transfer of up to 33% of clean water capitalization grants to drinking water. A number of States already have issued combined CW/DW bond pools to increase the pace of funding and to lower costs.

Potential Use: The DWSRF has great potential for pollution prevention. They are increasingly financing watershed protection and land acquisition, as well as making conservation easement loans. The DWSRFs are still working out tax issues pertaining to leveraged loans for the private sector, and credit issues for private and small borrowers, for whom loan guarantees may be used instead.

Advantages: DWSRFs can support any local water system via low-interest loans and technical assistance. Their funds are more flexible and less costly than commercial loans or private activity bonds. They have great flexibility in directing funds to pressing compliance and public health needs.

Limitations: Competition for DWSRF money is intense. Many federal restrictions apply to the program, such as cross-cutting requirements, planning and other work, and set-asides. Some States still prohibit private and non-profit sector funding. Operations and maintenance funding is banned. Loans cannot finance growth or development (i.e., entirely new facilities), or dams.

Reference for Further Information: U.S. EPA-DWSRF 1997 guidance, Office of Water, Office of Ground Water and Drinking Water, 401 M Street, SW, Washington, DC 20460, Mail Code 4601; Phone: 202-260-5522; Fax: 202-260-4383. U.S. EPA Environmental Financial Advisory Board (EFAB) report, *Funding Privately Owned Water Providers through the SDWA* SRF, July1998.

FEDERAL FINANCING BANK

Description: The Federal Financing Bank was established by Public law 93-224, the "Federal Financing Bank Act of 1973". The purpose of the Act is to assure that federal and federally assisted borrowing programs are coordinated with federal economic and fiscal policies to reduce the costs of these borrowings, and to assure that they are financed in a way that least disrupts private financial markets and institutions. Accordingly, the Bank is intended to be the vehicle through which most federal agencies finance programs involving the sale or placement of credit market instruments, including agency securities, guaranteed obligations and the sale of assets.

Actual Use: The Bank borrows all funds from the Treasury and matches the terms and conditions of its borrowings to the terms and condition of its loans. Obligations issued by the Bank are subject to federal taxation and are classified as exempt securities. Since 1975, the Bank has lent funds at a rate one-eighth percent above the new issue curve of U.S. Treasury securities. Federal agencies using the Bank have included the Departments of Health and Human Services, Defense, Housing and Urban Development, Agriculture (Rural Utilities Service), and Commerce; and the Export-Import Bank, the Resolution Trust Corporation, and the General Services Administration. Federal Financing Bank obligations issued, sold or guaranteed by other federal agencies totaled $58.2 billion on December 31, 1996.

Potential Use: If EPA or other federal agencies sought and obtained the authority to issue environmentally-related securities to pay for their environmental activities, the Bank could be used to handle the financing. Such securities might take the form of green or environmental bonds and might be used in a wide variety of programs including (but not necessarily limited to) brownfields cleanup and redevelopment, ecosystem and watershed protection, environmentally sustainable community development, and pollution prevention/recycling.

Advantages: When federal agencies use the Bank to finance activities instead of using general appropriations, this contributes to deficit reduction. In addition, the use of the Bank is inherently a more sustainable way of financing agency activities.

Limitations: Use of the Bank would be more expensive in the immediate term, thus reducing the amount of assistance provided to program recipients or increasing the cost of that assistance.

Reference for Further Information: Federal Financing Bank, U.S. Department of the Treasury, 1500 Pennsylvania Avenue, NW, Washington, DC 20220. Phone Number: 202-622-2470.

FEDERAL LOAN PROGRAMS

Description: Federal loan programs generally lend funds to State or local governments or nonprofit organizations at fixed or variable rates of interest. The loan programs exist to fund various types of activities and projects.

Actual Use: Generally, federal funds are lent for the purpose of financing a particular activity and/or facility in many areas, including environmental ones. The scope of the federal funds' use for financing the activity and/or facility can be broadly or narrowly defined depending upon the governments desired role.

Potential Use: Loan programs could feasibly be used to fund a broad number of environmental protection priorities and to leverage a considerable expansion in the long-term impact of federal environmental assistance.

Advantages: Unlike grants, larger projects can be undertaken with loans, and subsequently the repaid capital and any interest can be relent to others for additional projects. Properly managed loan program funds can be recycled indefinitely. Many federal loan programs have very low interest rates and/or very favorable loan terms.

Limitations: Some low income areas may find that they are unable to meet the repayment requirement for any type of loan assistance without imposing an undue economic hardship on their community. Federal loan programs may require assistance recipients to meet specific eligibility requirements and/or a test of acceptable credit quality that may disqualify many communities, including even the most needy.

Reference for Further Information: Information on the wide variety of federal loans and loan programs is available in the *Catalog of Federal Domestic Assistance* and on its World Wide Web site located at **http://aspe.os.dhhs.gov/cfda/index.htm** - at which point there will be links to Programs listed by: Alphabetic Listing of Programs, Subject or Topic, Target or Beneficiary Group, Agency within Department, Independent and Other Agencies. There are also links to an Appendix with Agency Contact Information. The U.S. Department of Agriculture's Rural Business- Cooperative Service and Rural Utilities Service are examples of federal loan programs which may be applicable to small and disadvantaged communities.

NORTH AMERICAN DEVELOPMENT BANK

Description: The North American Development Bank (NADBank) was created within the North American Free Trade Agreement (NAFTA) process. Its principal purpose is to finance (primarily through loans) environmental infrastructure projects along the United States-Mexico border, with an emphasis on municipal solid waste management, wastewater treatment, and the supply of potable water. The NADBank is equally capitalized by the governments of the United States and Mexico. Ten percent of the NADBank's capital is to be used for community adjustment and investment program development and financing.

Actual Use: The NADBank and its sister NAFTA institution, the Border Environmental Cooperation Commission (BECC), are working hard to fulfill their mandates (see also **Section 5.A., Border Environmental Cooperation Commission**). The BECC, which must review, approve and refer proposed projects to the NADBank for funding, has developed the necessary criteria and begun to fulfill this responsibility. The NADBank has announced financing packages for an $830,000 water supply and wastewater facility in Naco, Senora, and a $1.1 million wastewater plant for the Fraccionadora Industrial del Norta, S.A. (FINSA) industrial park in Matamoras, Tamaulipas.

Potential Use: Growing populations and trade have increased stress along the border region between the United States and Mexico. The lack of regional infrastructure to handle these growth patterns manifests itself in large backlog of municipal, environmental and public health, transportation, and educational needs. Accordingly, the region can absorb as many environmental projects as the BECC can certify and the NADBank finance.

Advantages: The NADBank's strong private sector and loan orientations represent clear leveraging strengths, and enhances equity of access to loans for hard-to-finance projects.

Limitations: Only projects certified by the BECC can be financed by the NADBank. NADBank does not provide equity funding. Many border communities may not be able to afford to repay loans in any form. Projects financed by the NADBank must address environmental issues within 100 kilometers of either side of the United States-Mexico border. NADBank capitalization may fluctuate in the future.

Reference for Further Information: The North American Development Bank (NADBank), 700 North Mary's Street, Suite 1950, San Antonio, Texas 78205, Phone: 210-231-8000, Fax: 210-231-6232, Internet site at **http://www.nadbank.org/**.

PRIVATE INVESTMENT

Description: Private investment is defined herein as loan and other financial assistance originating from sources other than commercial banks and/or finance companies. Sources of private investment can include, but are not limited to, insurance companies, pension funds, venture capital funds, individual venture capitalists, corporation partners, general capital investors, and even family and friends.

Actual Use: Private investment funds an overwhelming percentage of the new business start-ups in the United States each and every year. The amount of such investment is not calculated in the hundreds of millions of dollars, but rather in the billions. The entrepreneurial ventures funded with this private investment range across the entire spectrum of American private sector activities. It includes, of course, the environmental goods and services sector as well as all environmental-related activities.

Potential Use: The potential uses of private investment for supporting environmentally-related businesses and/or activities is only limited by the degree of profit associated with them. If an idea or activity will make money, or if it even looks like it will, then private investment can be found to support it.

Advantages: The application process for private investment can be much faster than for government loan programs and even faster than that for commercial loans. Private investors usually have no detailed set eligibility criteria in the way that government loan programs do and may have no predetermined limits on the total amount of loan capital available.

Limitations: Private investors will want a significantly higher rate of return on their money than will other sources of capital. They may demand a significant piece of the business itself as a potential reward for risking their money.

Reference for Further Information: Funding information on venture capital funds is available in directories such as, *Who's Who in Venture Capital* (third edition, 1986), published by John Wiley and Sons, Inc. Many sources of information on venture capital and private investment are readily available on the World Wide Web and can be accessed using public search engines such as *Lycos, Yahoo, Infoseek*, *Excite*, etc. See **Section 10, Tools To Access Financing for Small Businesses and the Environmental Goods and Services Industry**.

STATE LOAN PROGRAMS

Description: Numerous States have loan programs that provide assistance to localities for financing infrastructure or other projects. Many of these loan programs operate as revolving funds, meaning that the programs are at least partially financed by repayment of earlier loans.

Actual Use: Currently, seventeen States administer water-related programs independent of EPA- funded State revolving loan programs (SRFs). The Washington Public Works Trust Fund operates as a revolving loan fund, providing low interest (1 to 3 percent) loans for critical public works projects. Texas created a Water Development Fund to make loans to political subdivisions for constructing dams, reservoirs, and water supply systems. Among other programs, the Kentucky Infrastructure Financing Authority provides low cost loans for drinking water facilities. Connecticut operates a loan program and voluntarily pledges loan repayments to the SRF. Some States operate loan programs for landfills.

Potential Use: State loan programs can be used to assist localities in financing environmental facilities. In some cases, State programs might be able to enable project financing by providing subordinated loans for part of a project. These loans would be the last to be repaid in the event of default, while any commercial investors who participated in the financing would receive their repayments first. For example, if a solid waste facility needed $30 million in overall financing, and the private sector were willing to come up with $15 million, a subordinated loan from a State loan program could fill the gap. The private sector would have the assurance that it would be the first loan repaid in the event of default, and that the entire project would be fully financed.

Advantages: They can often provide low interest loans with favorable terms. States can target investments to specific project types, encouraging localities to build particular facilities.

Limitations: Loan programs may have significant start-up costs; need a source of revenue for capitalization.

Reference for Further Information: Council of Infrastructure Financing Authorities (CIFA), Washington, DC, CIFA Monograph No. 8: *State Revolving Loan Fund Survey*, by the Ohio Water Development Authority, May 1996. Washington Department of Community Development, *Public Works Trust Fund 1992 Priorities Legislative Report*, 1992, describes the Trust Fund's revolving fund program. Government Finance Research Center (GFRC), Government Finance Officers Association (GFOA), *Credit Pooling to Finance Infrastructure: An Examination of State Bond Banks, State Revolving Funds and Substate Credit Pools*, September 1988.

STATE REVOLVING LOAN FUND (SRF) PRE-FINANCING AND SHORT-TERM LOANS

Description: Some State Revolving Fund (SRF) clean water loan programs make short-term loans for planning, design and initial construction in localities which may be later receive long-term SRF loans. Some SRFs pre-finance the loans or grants of other federal and State programs which pay on a reimbursement or other less timely basis. SRF pre-financing loans have been used for Rural Utility Service wastewater loans (paid out after construction is completed), HUD wastewater grants (paid on a cost-incurred basis), and specifically authorized State loans and grants, such as for landfill closure and hazardous waste site clean-up. SRF pre-financing loans may be taken out later by federal or State payments, in whole or in part, based on specific SRF funding choices.

Actual Use: A few SRFs , such in New York, are making short-term, no-interest, clean water loans to regular clients for design and initial construction costs. Others, such as in Texas and Wisconsin, regularly pre-finance other grants or loans, and in theory, most States could do likewise. The Texas SRF uses variable interest rates when pre-financing other loans.
These types of loans depend on funds availability and management decisions. For example, since the New York SRF makes non-point source landfill-related loans, it can pre-finance State landfill grants and loans provided for under a State environmental financing bond act. The extent of pre-financing also depends on the degree and quality of SRF coordination with other program funders.

Potential Use: Since SRFs usually offer prompt funding and seek a wide range of clients by offering one-stop-shopping financing services, pre-financing possibilities are large. Drinking water SRF loans also may be used to pre-finance other federal or State drinking water loans or grants. States like New York are moving to a common, simplified loan application form, and federal and State funders meet regularly to review joint projects.

Advantages: Prompt up-front funding increases the chances that facility construction will move forward in a timely way, or at all. It enhances equity for smaller communities which may not have the resources to plan, design and construct facilities while waiting for reimbursement. SRFs can sometimes fund design work or land acquisition which other federal or State programs cannot.

Limitations: Successful SRF pre- and short-term financing depend on State-specific factors, such as coordination with other agencies, flexibility and/or breadth of funding choices, availability of funds, and State priority lists. If SRF managers are unaware of the intentions of other agencies, or if funding cycles and loan procedures differ greatly, pre-financing opportunities may be limited.

Reference for Further Information: New York State Environmental Facilities Corporation, 50 Wolf Road, Room 547, Albany, NY 12205; Phone: 518-457-4100; Fax: 518-485-8773.

SRF PRIVATE BENEFICIARY LOANS - CLEAN WATER

Description: The Clean Water SRF program (CWSRF) for wastewater is statutorily limited to publicly-owned projects only, unlike the Drinking Water SRF (DWSRF) program which erases the distinction between the public and private sectors. However, on occasion loans have been made through a municipal lease arrangement that allow private sector use of the funds, as defined under the federal tax code. Under this arrangement, the SRF makes a loans to a publicly-owned entity, State or municipal, which has leased a facility to the private sector. The private project is not part of a shared municipal facility. The public entity acts as a conduit for loan funds to the private beneficiary, who makes lease/loan payments to the public entity through an operating lease or service agreement. The private party serves as the first source of loan repayment.

Actual Use: The New York SRF has made two CWSRF loans to private beneficiaries, including a food processing wastewater treatment facility and a proposed newspaper recycling facility. The funds used for CWSRF private beneficiary lending, called economic development loans, are derived only from SRF "retained earnings", comprised of direct loan interest repayments and investment earnings on recycled dollars, as opposed to federal capitalization grant dollars. Thus, the number of such loans is automatically capped by the amount of retained earnings annually, over $60 million in New York's case. Loans may be made at taxable interest rates to retain the option of refinancing on a leveraged loan pool basis, i.e., so as not to compromise the tax-exempt status of the pool.

Potential Use: The potential uses of CWSRF loans to private beneficiaries is large, and could fund brownfields, solid waste and nonpoint source projects as well as standard wastewater facilities.

Advantages: In terms of the environmental benefits achieved, there is no difference between the public and private sectors. Accessibility to financing and equity considerations are enhanced by extending SRF loans to private beneficiaries, as is authorized under the DWSRF program. Because SRF interest subsidies typically are offered, SRF loans are less expensive than the alternative of tax-exempt private activity bonds or commercial debt, and the uncertainty of accessing State volume cap is eliminated. Including such projects in bond pools further may reduce costs to private borrowers.

Limitations: Loan repayments are directly dependent on the economic health of the private beneficiary. Thus, CWSRFs considering this option must examine carefully the credit of the private beneficiary. Policies and procedures most be adopted to ensure the publicly-owned projects ready for funding are not sacrificed by excessive private beneficiary funding, and that SRF solvency is not affected. Direct competition on priority lists between the public and private sectors would be opposed by the private sector, and circumvent the statutory mandate of the CWSRF.

Reference for Further Information: SRFs should consult their EPA Regional Offices before undertaking private beneficiary loans.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR LOANS

Criteria/ Loan	**Actual Use**	**Revenue Size**	**Revenue Cost/ Saving**	**Admini-strative Ease**	**Equity**	**Finan-cial Lever-agng**	**Environ-mental Benefits**
Agriculture: RB-CS Economic Development	Low	Low	Mod.	Mod.	High	High	Low-Mod.
Agriculture: RHS Community Facilities	Low	Low	High	Mod.	High	High	Low
Agriculture: RHS Housing Site & Self-Help Housing	Low	Low	Mod.	Mod.	High	Mod.	Low
Agriculture: RUS Water/ Waste Disposal	High	Mod.	High	Mod.	High	High	High
***Co-Bank**	Mod.	Low	Mod.	Mod.	High	High	High
Co-Funding	Low	Low	High	Low - Mod.	High	High	High
***Commercial Loans**	High	High	Low	High	Low	Mod.	High
***Direct Source Financing**	High	High	Mod.	High	Mod.	High	High
***EPA: SRFs - Clean Water**	High	High	High	Mod.- High	High	Mod.	High

COMPARISON MATRIX continued

Criteria/ Loan	Actual Use	Revenue Size/ Stability	Revenue Cost/ Savings	Admini-strative Ease	Equity	Finan-cial Lever-aging	Environ-mental Benefits
***EPA: SRFs Drinking Water**	High	High	High	High	High	Mod.	High
Federal Financing Bank	Low	High	Low - Mod.	Mod.	Mod - High	Low	Low
Federal Loan Programs	Low	Low	Mod.	Low	Mod.	Mod.	Low
***NAD-Bank**	Low	Low	Mod. - High	Low - Mod.	High	High	High
***Private Investment**	Mod.	Mod. - High	Low	High	Low	High	High
State Loan Programs	Low	Low	Mod.	Mod.	Mod. - High	Mod.	High
***SRF Pre-Financing**	Low	Low	High	Low-Mod.	High	Mod.	High
***SRF (CW) Private Beneficiary**	Low	Low	High	Mod. - High	Mod.	High	High

High - High use (over 25 States, many localities/private sector); criteria score high (low cost, accessible, flexible, project specific)

Mod.- Moderate use (10-25 States, many others); criteria score in medium range

Low - Low or rare use (under 10 States, few localities and private sector); criteria score poorly

* Star indicates best-rated mechanisms

2.C. GRANTS

2.C. GRANTS

Description: A grant is a sum of money awarded to an eligible entity without a demand for repayment. Typically, grants are awarded by the federal government to State or local governments, or by States to local governments, for the purpose of financing a particular activity or facility. The grant award represents a monetary transfer payment from one organization to another for a purpose deemed necessary or desirable by the awarding organization. Grants also can be made by or to the private sector, particularly non-profit organizations. Matching grants, for example, on a one-to-one basis, are now being used both the public and private sectors.

Advantages: The primary advantage of grants is that State and local governments and other eligible recipients do not have to use their own resources to pay the specific eligible costs that the grant monies cover. In cases where grant recipients do not have the needed resources, grants enable valuable work to move forward. In other cases, grants make it possible for recipients to pursue additional environmental and/or other activities or to forgo expenditures entirely. Grants can be highly equitable when they address affordability concerns, and may be the only way that some recipients, such as smaller communities, can proceed. Furthermore, grants can leverage additional resources through matching funds.

Limitations: Applying for grants can be costly, time-consuming, and problematical. It requires trained staff on the part of the grantee to determine grant opportunities and submit often detailed grant applications. These grant applications can often take months for the awarding organizations to process and award. Even then, due to the intense competition at both the State and the local levels for the limited pool of grant funds, State and local governments and other recipients may find it increasingly difficult to acquire funding for many projects. Due to grant project eligibility limitations, only a percentage of the total project costs may be eligible for project assistance. Providing matching funds, often ranging from 5 to 50 percent, may be difficult. Even when grant funding is approved, the grantee may need to seek short-term debt instruments to cover cash shortages while awaiting the arrival of the funds.

Grant funds often have conditions that affect the scope, intent, nature or cost of the project or program in question. For example, USEPA Section 105 grants are negotiated grant agreements which obligate State air programs to use the funds to perform certain activities that may or may not coincide with the State's own priorities for its air program. Certain grant conditions, such as mandatory grant reviews and production of detailed reports, may increase the overall cost of the project. Most federal grants also require that grantees comply with other federal laws and regulations regarding a range of factors such as wage rates, anti-discrimination and environmental requirements. In recent years, grant funding has been increasingly unstable, making it difficult to plan ahead.

Summary: Grants remain the cheapest way for grant recipients to fund environmental work, and may be the only way to get a project moving, particularly those of smaller, disadvantaged entities. Federal grants are still the largest source of environmental grant monies compared to States, communities, and then non-profit sector. Grants clearly demonstrate the federal commitment specific environmental priorities. However, federal grants have many limitations. These grant monies tend to be unstable, slow-moving, highly competitive, and not readily expandable, compared to other financing tools such as bonds. Because of the large number of different federal grants and constantly changing requirements, grants are not summarized in a Comparison Matrix at the end of the section. Potential grant recipients should, and need to, consult the **Catalog of Federal Domestic Assistance** available from the U.S. General Services Administration. The catalog also can be accessed electronically on the World Wide Web at **http://aspe.os.dhhs.gov/cfda/index.htm**. The catalog has its own write-up in the *Guidebook* in **Section 5.B.: Electronic Services**.

LIST OF GRANTS
(In Alphabetical Order)

1. Agriculture: Forest Service -- Cooperative Forestry Assistance
2. Agriculture: Forest Service -- Economic Action Programs
3. Agriculture: Forest Service -- Landowner Assistance Programs
4. Agriculture: Forest Service -- Urban and Community Forestry Program
5. Agriculture: NRCS – Environmental Quality Incentives Program
6. Agriculture: Rural Business-Cooperative Service -- Business Enterprise Grants
7. Agriculture: Rural Business-Cooperative Service -- Economic Development Grants
8. Agriculture: Rural Utilities Service -- Distance Learning and Telemedicine Grants
9. Agriculture: Rural Utilities Service -- Water and Wastewater Disposal Systems Grants
10. Appalachian Regional Commission Supplemental Grants
11. Commerce: EDA – Public Works and Infrastructure Development Grants
12. Commerce: EDA – Special Economic Development & Adjustment Assistance Grants
13. Commerce: NOAA – Coastal Services Center Cooperative Agreements
14. Commerce: NOAA – Coastal Zone Management Administration Implementation Awards
15. Defense: Army Corps of Engineers -- Civil Works Projects
16. EPA: Environmental Education and Training Grants
17. EPA: Environmental Justice Grants to Small Community Groups
18. EPA: Environmental Monitoring for Public Access & Community Tracking Grants
19. EPA: Performance Partnership Grants
20. EPA: Program Grants
21. EPA: Section 319 Nonpoint Source Pollution Control Grants
22. EPA: Superfund Technical Assistance Grants
23. EPA: Sustainable Development Challenge Grants
24. EPA: Underground Storage Tank Trust Fund Program Grants
25. EPA: Wetlands Protection Development Grants
26. Environmental Technology Initiative
27. FEMA: Flood Mitigation Assistance
28. FEMA: Hazard Mitigation Assistance
29. Foundation and Corporate Giving
30. HUD: CDBG – Economic Development Initiative Grants
31. HUD: CDBG – Entitlement Grants
32. HUD: CDBG – Small Cities Program Nonentitlement Grants
33. HUD: CDBG – States' Grants Program Nonentitlement Grants
34. Interior: Fish and Wildlife Service -- National Coastal Wetlands Conservation Grants

LIST OF GRANTS Continued

35. Interior: Fish and Wildlife Service -- North American Wetlands Conservation Act Grants
36. State Grant Programs
37. State Revolving Fund (SRF) Drinking Water Principal Subsidies
38. Transportation: Federal Transit Administration -- Livable Communities Initiative
39. Transportation: Transportation Equity Act for the 21st Century (TEA-21)

[**Special Note:** We received a writeup for an innovative new grant tool after this section was completed. Please see the write-up for the **EPA: Clear Air Partnership Fund** in Appendix A on page A-4.]

DEPARTMENT OF AGRICULTURE
FOREST SERVICE
COOPERATIVE FORESTRY ASSISTANCE

Description: Cooperative Forestry Assistance provides formula grants to State forestry agencies to assist in the advancement of forest resource management with respect to non-federal forests and other rural lands. Among the program's objectives are encouragement of the production of timber, control of insects and diseases affecting trees and forests, control of rural fires, improvement and maintenance of fish and wildlife habitat, planning and conduct of urban and community forestry programs, and efficient utilization of wood and wood residues, including the recycling of wood fiber. State agencies can use the assistance to provide funds to owners of non-federal lands, rural communities, urban municipalities, nonprofit organizations, and State and local agencies for programs which help to achieve ecosystem health and sustainability by improving wildlife habitat, conserving forest land, reforestation, improving soil and water quality, preventing and suppressing damaging insects and diseases, wildfire protection, expanding economies of rural communities, and improving urban environments.

Actual Use: In Fiscal Year 1997, cooperative forestry grant obligations totaled $91,629,000, with individual grant amounts ranging from $25,000 to $6 million. Almost sixteen thousand landowners and 2.15 million acres were enrolled in forest stewardship programs. Approximately 1,800 rural and 8,000 urban communities were being assisted.

Potential Use: State forestry agencies can support a wide range of environmental protection and enhancement activities. Sound forestry practices can be essential to watershed protection and preservation of streams, lakes and wetlands. The Forest Service estimates that program grant obligation totals in each of Fiscal Years 1998 and 1999 will be about $104,000,000. The Service projects that more than 4,000,000 acres will be enrolled in forest stewardship programs by the end of the year 2000.

Advantages: This program provides State forestry agencies with resources they would not otherwise have to promote and support environmental protection and remediation.

Limitations: Some cooperative forestry assistance is restricted to owners of non-industrial private forest land.

Reference for Further Information: Contact U.S. Department of Agriculture, Forest Service, State and Private Forestry Division, Cooperative Forestry Staff, P.O. Box 96090, Washington, DC 20090-6090, Telephone: 202-205-1657, Fax: 202-205-1174, Internet: **www.fs.fed.us/spf/.**

DEPARTMENT OF AGRICULTURE
FOREST SERVICE
ECONOMIC ACTION PROGRAMS

Description: The Economic Action Programs framework under Cooperative Forestry Assistance includes a set of programs aimed at helping communities to diversify and strengthen their local economies through a whole range of forest-based resources. It focuses on integrating economic development and environmental protection concerns in the context of sustainable community development goals. The three major program components are Rural Community Assistance, Forest Products Conservation and Recycling, and Market Development and Expansion. Rural Community Assistance focuses on helping the whole community capitalize on available local human and natural resources to improve the quality of life and the social and economic situation. Communities are helped to organize, plan, and implement actions that are community-based, comprehensive, and partnership oriented. Forest Products Conservation and Recycling encourages and facilitates more efficient use of forest resources to enhance economic development and promote better stewardship of the forest resource. Emphasis is on stimulating public and private sector innovation. Opportunities include new uses for wood and other forest based resources through recycling and value-added secondary manufacturing, and alternative goods and services. Market Development and Expansion is meant to strengthen local and regional economies through the creation of domestic and international markets for forest resources.

Actual Use: The Michigan Forest Management Division emphasizes employment retention through sustainable economic activities in the forest products industry. The New Mexico Forestry Division has initiated a forest health/rural wealth partnership to assist forest-based communities to utilize forest products in ways that help improve the health of forest ecosystems.

Potential Use: State foresters can promote conservation and recycling of forest resources in conjunction with the production and marketing of environmentally friendly goods.

Advantages: Economic Action Programs focus on integrating economic development and environmental protection concerns. They can help organize diverse community interests for renewable resource based economic development and conservation.

Limitations: State forestry agencies must participate meaningfully in the program if it is to provide needed environmental assistance while promoting forest-based economic development.

Reference for Further Information: U.S. Department of Agriculture, Forest Service, State and Private Forestry Division, Cooperative Forestry Staff, P.O. Box 96090, Washington, DC 20090-6090, Telephone: 202-205-1657, Fax: 202-205-1174, Internet: **www.fs.fed.us/spf/**.

DEPARTMENT OF AGRICULTURE
FOREST SERVICE
LANDOWNER ASSISTANCE PROGRAMS

Description: Cooperative Forestry Assistance includes technical and financial assistance to help private landowners create sustainable forest land management plans and implement their forest stewardship objectives. The Forest Stewardship Program (FSP) uses cooperative agreements with State forestry agencies to deliver professional natural resource management advice to non-industrial private forest (NIPF) land owners. It provides technical and planning guidance to landowners who agree to maintain the land under a detailed natural resource management plan for at least ten years. A completed Forest Stewardship plan is required of landowners seeking cost share assistance via the Stewardship Incentives Program (SIP). This program supports a wide range of forest management activities to develop and implement Forest Stewardship plans. Eligible activities beyond plan development include reforestation and afforestation, forest and agroforest improvement, soil and water protection and improvement, riparian and wetland protection and improvement, fisheries habitat enhancement, wildlife habitat enhancement, forest recreation enhancement, and windbreak and hedgerow establishment, maintenance and renovation. Preference is given activities designed to attain multiple objectives, such as forest and agroforest improvements which enhance wildlife habitat or create recreation opportunities. Federal reimbursement of approved landowner expenses may be up to 75%, to a maximum of $10,000/year, in exchange for landowner agreement to maintain and protect SIP-funded practices for at least ten years. The Forest Legacy (FL) Program supports State acquisition of partial interests (e.g., conservation easements) in privately owned forest lands to restrict development of environmentally sensitive areas.

Actual Use: Landowner assistance programs have been a basic component of cooperative forestry and typically involve thousands of landowners and millions of acres.

Potential Use: These programs can improve environmental management of privately owned non-industrial forest land and can induce landowners to replant and maintain private forests.

Advantages: Federal funds help states provide otherwise unaffordable technical assistance and cost sharing to private land owners.

Limitations: Participation by private forest owners is voluntary and the limit on federal reimbursement reduces the attractiveness of the program while program accomplishment standards may promote emphasis on larger parcels within the pool of eligible lands.

Reference for Further Information: U.S. Department of Agriculture, Forest Service, State and Private Forestry Division, Cooperative Forestry Staff, P.O. Box 96090, Washington, DC 20090-6090, Telephone: 202-205-1389, Fax: 202-205-1271, Internet: **www.fs.fed.us/spf/.**

DEPARTMENT OF AGRICULTURE
FOREST SERVICE
URBAN AND COMMUNITY FORESTRY PROGRAM

Description: The Urban and Community Forestry Program is implemented through Forest Service Regional/Area Offices working with State Foresters and key cooperators such as Soil and Water Conservation Districts, state forestry associations, and city foresters/arborists. Each State Forester is required to establish a State Urban Forestry Advisory Council and a full-time Urban and Community Forestry coordinator position. The State advisory councils recommend program and funding priorities and assist the State foresters in preparing State Urban and Community Forestry Strategic Plans. Projects must include community volunteerism as a major element and must have the objective of solving some specific, described problem. States may use no more than twenty percent of their annual funding for purchasing, planting, or maintaining trees in communities. Direct funding grants for the purchase and planting of trees or for maintenance activities are on a 50/50 matching basis.

Actual Use: The Ohio Department of Natural Resources' Division of Forestry works with the Ohio Environmental Protection Agency and Attorney General's Office to use air pollution fines for pass-through grants to communities for targeted tree planting projects.

Potential Use: State forestry agencies can support restoration of urban watersheds and help preserve forest lands threatened by residential and commercial growth, in coordination with related environmental projects.

Advantages: The program explicitly promotes ethnic and cultural diversity in urban and community forestry efforts.

Limitations: Grants to communities and nonprofit urban forestry organizations require a 50% match, potentially eliminating participation by low-income communities.

Reference for Further Information: U.S. Department of Agriculture, Forest Service, State and Private Forestry Division, Cooperative Forestry Staff, P.O. Box 96090, Washington, DC 20090, Telephone: 202-205-1389, Fax: 202-205-1271, Internet: **www.fs.fed.us/spf/.** Ohio Department of Natural Resources, Division of Forestry, 1855 Fountain Square Court, Columbus, Ohio 43224, Telephone: 614-265-6694, Internet: **www.hcs.ohio-state.edu/ODNR/Forestry.htm**.

DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)
ENVIRONMENTAL QUALITY INCENTIVES PROGRAM

Description: The Environmental Quality Incentives Program (EQIP), authorized by the Federal Agricultural Improvement and Reform Act of 1996, is a single, voluntary conservation program, that replaces the Agricultural Conservation Program, Agricultural Water Quality Incentives Program, Great Plains Conservation Program and Colorado River Basin Salinity Control Program. It provides technical, financial, and educational assistance to farmers and ranchers through the NRCS. In line with maximizing the overall environmental benefits, the NRCS may designate a watershed, an area or a region of special environmental sensitivity as a priority area and give special consideration to applicants who have conservation plans that address the natural resource concern(s) for which the priority area was designated. Half of the program's assistance is targeted to livestock-related natural resource concerns and half to general conservation priorities. It includes cost-share assistance for up to 75% of the cost of conservation practices such as grassed waterways, filter strips, manure management facilities, capping abandoned wells, and wildlife habitat enhancement. Incentive payments can be made for up to three years to encourage livestock and agricultural producers to adopt land management practices such as nutrient, manure, irrigation water, wildlife, and integrated pest management. Total cost-share and incentive payments are limited to $10,000 per person per year and $50,000 for the contract term of 5 to 10 years. Cost-sharing assistance may not be given to construct animal waste storage or treatment facilities serving large confined livestock operations.

Actual Use: In Fiscal Year 1997, EQUIP made $171,000,000 in grants and provided $5,066,644 in educational assistance. The NRCS estimates that EQUIP will make $156,000,000 and $174,000,000 in grant obligations in Fiscal Years 1998 and 1999, respectively.

Potential Use: This program is expected to have a static funding level through fiscal 2002. It can be used for a wide range of water quality protection measures.

Advantages: The effective consolidation of programs can make it easier to use for both the clients and the administering agency, but the cost-share limit may retard participation.

Limitations: If a federal income tax deduction is taken for agricultural soil and water conservation expenses, cost-sharing payments cannot be excluded from gross income. The program has a $200 million/year authorization but annual funding could be less.

Reference for Further Information: U.S. Department of Agriculture, Natural Resources Conservation Service, Conservation Operations Division, PO Box 2890, Washington, D.C. 20013, Telephone: 202-720-1845; Fax: 202-720-1838; Internet: **www.nhq.nrcs.usda.gov/CCS/FB96OPA/ EQIPfinal.html**.

DEPARTMENT OF AGRICULTURE
RURAL BUSINESS - COOPERATIVE SERVICE
BUSINESS ENTERPRISE GRANTS

Description: These grants (also called Rural Development Grants) provide assistance for developing private business, industry, and related employment to improve the economy in areas and communities of less than 50,000 population. They help finance revolving funds, provide operating capital and finance to industrial sites in rural areas, give technical assistance, pay fees, and refinancing. Public bodies and nonprofit corporations serving rural areas are eligible applicants.

Actual Use: Typical project activities include acquiring and developing land; construction; converting, enlarging, repairing or modernizing buildings and equipment; transportation infrastructure; utility extensions; needed water supply and waste disposal facilities; and pollution control and abatement incidental to site development. Most of the environmental projects traditionally funded with these grants involve water and/or wastewater systems. In Fiscal Year (FY) 1997, more 369 grants were made with assistance averaging $160,000 and obligations exceeding $47 million. Grant obligations of $38 million and $40 million are projected for FYs 1996 and 1997, respectively.

Potential Use: These grants could be used to finance and/or help acquire capital for developing drinking water, wastewater treatment, solid waste disposal, non-point source and other environmental facilities. They also might be used to help fund the cleanup and redevelopment costs associated with the redevelopment of brownfields properties and facilities, and to promote the beneficial uses of sludge on agricultural land.

Advantages: Both public and private entities may be supported. The projects supported may have specific and significant environmental impacts.

Limitations: Priority for the grants is given to rural areas having a population of 25,000 or less. Other priorities include projects located in communities with a large proportion of low-income population; projects located in areas with high unemployment, projects that will retain existing jobs, and projects that will create new jobs. Many projects may not have an environmental focus.

Reference for Further Information: U.S. Department of Agriculture, Rural Business - Cooperative Service, 14th & Independence Aves., SW, Room. 5405-South Bldg., Washington, D.C. 20250, Telephone: 202-720-1400. Detailed information on these grants can also be accessed through the Service's World Wide Web site at **http://www.rurdev.usda.gov/rbs/busp/rbeg.htm**.

DEPARTMENT OF AGRICULTURE
RURAL BUSINESS - COOPERATIVE SERVICE
ECONOMIC DEVELOPMENT GRANTS

Description: Provides financial assistance promoting rural economic development and job creation projects. Grant funding may be used for project feasibility studies, start-up costs, incubator projects, and other related reasonable expenses. Eligible applicants include electric and telephone utilities with current rural electrification or rural telephone bank loans or guarantees outstanding.

Actual Use: Examples of projects funded include the establishment or expansion of factories or businesses, medical facilities, water and sewer industrial development parks, business incubators for rural economic development activities, and other jobs projects. Some grants have been used to establish revolving loan funds. Most of the environmentally-related projects funded involve water or wastewater systems.

Approximately $11million in grants were obligated in Fiscal Year (FY) 1997 with assistance ranging from $10,000 to $330,000 and averaging $260,000. Grant obligations are projected at approximately $11 million per year in FYs 1996 and 1997.

Potential Use: These grants could be used to help finance directly and/or acquire capital for additional wastewater and drinking water utilities, and to fund non-point source improvements. Depending on interpretation of authorizing legislation and regulations, they might also fund solid waste and waste-to-energy facilities, as well as brownfields cleanup and redevelopment.

Advantages: The grants are inherently equitable since they fund projects that would not otherwise be funded for an often needy segment of society. When revolving loan funds are created, leveraging is very high.

Limitations: The maximum grant amount is under $500,000. The maximum loan term is ten years at a zero interest rate. Grantees must provide supplemental funds totaling 20 percent of the assistance received from this program.

Reference for Further Information: U.S. Department of Agriculture, Rural Business -Cooperative Service, 14th & Independence Avenues, SW, Room. 5405-South Building, Washington, D.C. 20250, Telephone: 202-720-1400, Internet: **http://www.rurdev.usda.gov/rbs/index.html**. Detailed information on these grants is also available in the *Catalog of Federal Domestic Assistance* and its World Wide Web site at **http://aspe.os.dhhs.gov/cfda/ideptagr.htm** - which has links to these grants and a wide range of federal assistance.

DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE
DISTANCE LEARNING AND TELEMEDICINE GRANTS

Description: The Rural Utilities Service (RUS) awards grants and loans to schools, libraries, or other eligible organizations that use a telecommunications, computer network, or related advanced technology system to provide educational benefits to rural residents (see also **Section 5.B., Long Distance Learning**). This does not include the purchase of land and buildings or construction of buildings. Nor does it include salaries, wages, or employee benefits of personnel providing educational services or the administrative expenses of the applicant. Grant funding can be for up to 70% of eligible project costs and applications must include funding commitments from other sources for the rest. Grant applications may be submitted at any time and there is no restriction on the length of time to spend grant funds, which are advanced monthly or as needed to reimburse disbursements for approved grant purposes. Audit reports are required for the years in which grant or loan funds are received. RUS will assist in preparing the preapplication form, OMB Standard Form 424. Also, the Office of Telecommunications and Information Applications of the Department of Commerce's National Telecommunications and Information Administration administers the Telecommunications and Information Infrastructure Assistance Program (TIIAP). It awards matching grants to non-profit organizations to buy equipment for connection to networks, to buy software, to train staff and users, to purchase communications services, and to evaluate projects and disseminate findings.
Actual Use: During fiscal 1993 through 1997 RUS awarded 192 grants totaling $52 million.
Potential Use: Estimated program volume for Fiscal Year 1998 is $21 million for grants and $150 million for direct loans. Otherwise unavailable environmental education and training in rural areas could be provided and existing effort could be expanded through distance learning.

Advantages: Grants and loans for required equipment can make distance learning efforts feasible in rural areas where costs per student would otherwise be unaffordable.

Limitations: Beneficiaries must be people living in rural areas and projects must improve rural opportunities, particularly in education and training.

Reference for Further Information: Assistant Administrator, Telecommunications, Rural Utilities Service, Room 4056, South Building, U.S. Department of Agriculture, 1400 Independence Avenue, SW, Washington, DC 20250-1500, Telephone: 202-720-9554, Internet: **www.usda. gov/**. U.S. Department of Commerce, Office of Telecommunications and Information Applications, National Telecommunications and Information Administration, 1401 Constitution Avenue, NW, Room 4096, Washington, DC 20230, Telephone: 202-482-2048, Fax: 202-501-5136, E-mail: tiiap@ntia.doc.gov; Internet: **www.ntia.doc.gov/otiahome/tiiap/.**

DEPARTMENT OF AGRICULTURE
RURAL UTILITIES SERVICE
WATER AND WASTE DISPOSAL SYSTEMS GRANTS

Description: These grants provide assistance for meeting rural water and waste disposal needs. Funds may be used to install, repair, improve, or expand water and waste disposal facilities. Eligible grant applicants include political subdivisions of a State (municipalities, counties, districts and authorities), associations, cooperatives, nonprofit corporations, and Indian Tribes.

Actual Use: Projects have included construction of water systems involving lines, wells, pumping stations, storage tanks and treatment plants; improvements to water systems such as new lines, wastewater facilities and booster pumps; renovation of water systems including distribution lines, wells and pressure tanks; construction of wastewater collection and treatment systems; replacement of wastewater plants and upgrade of collection lines; repair of wastewater lines and construction of lift stations; and purchase of landfill sites and trucks/equipment for solid waste disposal.
In Fiscal Year 1997, $518 million was obligated to 617 projects. Assistance ranged from $3,000 to $4.147 million and averaged $677,198. Estimates for the next two years are for 850 and 800 plus grants, and obligations of $522 million and $500 million, respectively.

Potential Use: These grants could be used to acquire capital to finance additional wastewater, drinking water, and solid waste facilities. Depending on interpretation of applicable legislation and regulations, the grants might also finance waste-to-energy and recycling facilities, and non-point source programs.

Advantages: Equity and leveraging possibilities are high, since State revolving funds, as well as HUD and EDA grants or loans, can be combined with these grants. State revolving funds can pre-finance these grants (and/or loans), thus covering up-front design and initial construction costs.

Limitations: Projects cannot service areas in towns of over 10,000 people. Grants (as opposed to loans) are made only if needed to reduce user charges to a reasonable level. For a grant of up to 70 % of eligible costs, service area median household income must be below the poverty level or below 80% of the State nonmetropolitan median household income (whichever is higher).

Reference for Further Information: U.S. Department of Agriculture, Rural Business-Cooperative Service, 14th and Independence Avenues, SW, Room. 5405-South Bldg., Washington, DC 20250, Telephone: 202-690-2670, Internet: **http://www2.hqnet.usda.gov/rus/water/programs.htm**. Information on these grants is also available in the *Catalog of Federal Domestic Assistance*, and at the *Catalog's* World Wide Web site, **http://aspe.os.dhhs.gov/cfda/ideptagr.htm**.

APPALACHIAN REGIONAL COMMISSION (ARC) SUPPLEMENTAL GRANTS

Description: ARC supplemental grants are awarded to States, public bodies, and private non-profit organizations for projects that create opportunities for self-sustaining economic development and improved quality of life for the people of Appalachia. The program seeks to stimulate investments in public services and facilities that attract private sector investments and accelerate social and economic development.

Actual Use: In fiscal year (FY) 1997, more than $60 million in grants supported 353 projects, including water and sewer systems, industrial parks, revolving loans, training and education, and business incubators. Grants funded in FY 1997 ranged from $2,150 to $1,500,000 with an average of $170,402. Funding estimates in FY 1998 and 1999, were $104,305,000 and $55,994,000, respectively.

Potential Use: The types of physical infrastructure projects supported could include more water and wastewater treatment systems and could be extended to include solid waste facilities, recycling facilities, waste-to-energy facilities, small business air pollution and waste audits, and recreation. Project resources might also be devoted to brownfields cleanup and redevelopment activities.

Advantages: Funding for the Appalachian Regional Commission has been quite stable over the years, and highly equitable given the economic need of the region as a whole. Project funding is specific and remains an opportunity.

Limitations: Grants are limited to counties in all or part of the States comprising Appalachia -- including Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia and West Virginia. The program generally only supplements other federal grants and 20 percent of eligible costs must come from sources other than the federal government. ARC supplemental grant assistance is limited to 50 percent of total project costs except in distressed counties where assistance is limited to 80 percent.

Reference for Further Information: U.S. Environmental Protection Agency (EPA), Environmental Financial Advisory Board (EFAB) Advisory, *Small Community Financing Strategies for Environmental Facilities*, August 9, 1991(this report contains a general description of the ARC supplemental grant program). Additional information on these grants and ARC programs can be found in the *Catalog of Federal Domestic Assistance* and at its World Wide Web site: **http://aspe.os.dhhs.gov/cfda/index.htm** - wherein there the assistance programs of all federal departments and agencies can be accessed via various organizational and topical formats.

DEPARTMENT OF COMMERCE
ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)
PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT GRANTS

Description: These grants support projects that promote long-term economic development and help construct public works/development facilities needed to encourage job creation and retention in economically distressed areas. States, cities, counties, other political subdivisions, Indian Tribes, Commonwealths, the Federated States of Micronesia, the Republic of the Marshall Islands, and U.S. territories, and public and private nonprofit organizations are eligible recipients.

Actual Use: Eligible projects include water and wastewater treatment systems, industrial park infrastructure improvements, industrial access roads, railroad siding and spurs, port facilities, tourism facilities, and vocational schools. A basic grant covers up to 50 percent of project costs, but severely depressed areas may get supplementary grants bringing the federal share to 80 percent of project costs. Designated Indian reservations may receive up to 100 percent assistance. In Fiscal Year (FY) 1997, more than $160 million was obligated for these grants covering 188 projects. Obligations are projected to exceed $160 million per year in FYs 1998 and 1999.

Potential Use: These grants could be used to acquire capital for renovating wastewater and drinking water utilities to bring them into compliance with the Clean Water and Safe Drinking Water Acts. They also might be used to help fund brownfields cleanup and redevelopment costs associated with the redevelopment of the types of eligible public facilities listed above.

Advantages: The program has had a significant environmental focus. Grants have on occasion been combined with State revolving fund loans and rural utility grants/loans for water and wastewater. Aid to the private non-profit sector enhances leveraging opportunities.

Limitations: Grants are limited to communities experiencing severe economic distress. Also, communities must generally provide matching funds of up to 50 percent. Further, grant funds are disbursed for costs incurred only after all construction contracts have been awarded. EDA grants have historically been somewhat unstable.

Reference for Further Information: U.S. Environmental Protection Agency (EPA), Environmental Financial Advisory Board (EFAB) Advisory, *Small Community Financing Strategies for Environmental Facilities*, August 9, 1991. An excellent description of the program is also available in the *Catalog of Federal Domestic Assistance* and its World Wide Web site, **http://aspe.os.dhhs.gov/cfda/ideptdoc.htm**- which has links to these Department of Commerce Grants, under ECONOMIC DEVELOPMENT ADMINISTRATION.

DEPARTMENT OF COMMERCE
ECONOMIC DEVELOPMENT ADMINISTRATION (EDA)
SPECIAL ECONOMIC DEVELOPMENT & ADJUSTMENT ASSISTANCE GRANTS

Description: These grants help State and local areas to develop and/or implement strategies addressing problems caused by sudden and severe economic dislocation such as business closings, military base closures and natural disasters, or resulting from long-term economic deterioration. Eligible recipients include States, cities, counties, other political subdivisions of a State, groups of political subdivisions, and public or private nonprofit organizations.

Actual Use: The grants are used to develop economic adjustment strategies and fund projects that implement such strategies, including the construction of public facilities, financing (including revolving loan funds), business development, technical assistance, training or other activity that addresses the economic adjustment problem. A 25 percent local share is required for all grants.

In Fiscal Year (FY) 1997, more than $300 million in funds obligated to 268 projects (includes funds for defense adjustment, hurricanes and the Midwest floods). Grant obligations for FYs 1998 and 99 are estimated to be $167 million and $175 million, respectively.

Potential Use: These grants could be used to renovate or build, or acquire the capital to renovate or build, many types of environmental facilities (including water, wastewater treatment, solid waste, waste-to-energy, and/or recycling facilities). They might also finance, or generate financing for, brownfields cleanup and reuse costs associated with the redevelopment of public facilities and businesses.

Advantages: The potential to use grant monies for environmental improvements in disaster areas is high, as improved environmental services are crucial. Equity and leveraging potential are also strong.

Limitations: Grants are limited to areas experiencing sudden economic distress or long-term economic decline. Communities participating in the program must provide matching funds equal to 25 percent of the grant received. The program supports many non-environmental projects, and funding had varied considerably over the years.

Reference for Further Information: A description of this program, as well as other EDA programs, can be found in the *Catalog of Federal Domestic Assistance* and also at the *Catalog's* World Wide Web site, **http://aspe.os.dhhs.gov/cfda/ideptdoc.htm**- which has links to these Department of Commerce Grants, under ECONOMIC DEVELOPMENT ADMINISTRATION.

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
COASTAL SERVICES CENTER COOPERATIVE AGREEMENTS

Description: The National Oceanic and Atmospheric Administration's Coastal Service Center supports projects aimed at developing creative, multi-dimensional, science-based solutions to coastal management issues that will allow maintenance or improvement of natural resources while also allowing for economic growth. State and local governments, public non-profit organizations, and other public institutions (e.g., colleges) are eligible for project grants (or cooperative agreements). In fiscal 1998 the Center will support activities in landscape characterization and restoration, coastal change analysis, coastal remote sensing, development and integration of geographic and tabular information, training and meeting facilitation, administration of the Coastal Management Fellowship program, commercialization of environmental technologies, and special projects.

Actual Use: Among others, cooperative agreements have been awarded to the University of Texas at Austin to develop a Coastal Technology Institute and North Carolina State University for commercial technology development, starting with an inventory of technologies. Global markets for four sectors of environmental technologies have been assessed and a technology business incubator has been staffed and opened.
From FY 1996 through FY 1998 twelve awards were made to twelve States. Grant obligations totaled $2 million in FY 1997 and are estimated to be $2 million and $1.7 million in FY 1998 and 1999, respectively.

Potential Use: This program can be used for coastal watershed protection and to support efforts to foster environmental technology businesses.

Advantages: The program's recognition of a need to allow economic growth distinguishes it from narrower efforts.

Limitations: This is a very small program (approximately $2 million) limited to projects to improve or maintain environmental quality in coastal areas.

Reference for Further Information: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Coastal Services Center, 2234 South Hobson Avenue, Charleston, SC 29405-2413, Telephone: 843-740-1200, Fax: 843-740-1224, E-mail: csc@csc.noaa.gov, Internet site: **www.csc.noaa.gov/**

DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA))
COASTAL ZONE MANAGEMENT ADMINISTRATION
IMPLEMENTATION AWARDS

Description: The Coastal Zone Management Program, authorized by the Coastal Zone Management Act of 1972, assists coastal states and island territories, including Great Lakes states, in implementing and enhancing coastal zone management activities approved by the Secretary of Commerce. Formula grants, which are based on population and miles of coastal shoreline and require a non-federal match, can be used to support assessment of the impacts of coastal growth and development, as well as projects in coastal wetlands management and protection, natural hazards management, reduction of marine debris, special area management planning, siting of coastal energy and government facilities, and ocean resource planning. No match is required for Coastal Zone Enhancement Program grants (cooperative agreements), which are meant to induce states to improve special area management planning, government and energy facility siting, ocean governance, public access to the coast, wetlands protection, and measures to deal with coastal hazards, marine debris, and cumulative and secondary impacts of development.

Actual Use: Management grants average $1.3 million and range from $500,000 to $2 million. Supported coastal zone management programs have included protection of wildlife and fisheries habitats and regulation of land use impacts on water quality. Grant obligations exceeded $48 million in Fiscal Year (FY) 1997, $49 million in FY 1998, and are projected to be $5.5 million in FY 1999.

Potential Use: Implementation funds can support marine wetlands and watershed protection and other important environmental measures in coastal areas.

Advantages: Federal actions that are reasonably likely to affect any land or water use or natural resource of the coastal zone must be consistent with the enforceable policies of a coastal State's or territory's federally approved coastal zone management program.

Limitations: The programs are limited to oceanic and Great Lakes coastal areas. The governor of the state or territory must designate an agency to participate and the Secretary of Commerce must approve the state's coastal zone management program.

Reference for Further Information: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Office of Ocean Resources Conservation and Assessment, Coastal Programs Division, 1305 East-West Highway, Silver Spring, MD 20910, Telephone: 301-713-3155x195, Fax: 301-713-4012, E-mail: juravitch@coasts.nos.noaa.gov, Internet site: **www.nos.noaa.gov/ocrm/czm/**.

DEPARTMENT OF DEFENSE
ARMY CORPS OF ENGINEERS
CIVIL WORKS PROJECTS

Description: The Army Corps of Engineers' Civil Works Directorate has numerous environmental responsibilities. Not only is the Corps the largest provider of water-based recreation facilities, it also administers a major environmental permitting program and operates hydropower facilities which provide 24 percent of the nation's electricity. Now among the Corps' responsibilities is management of the Formerly Used Sites Remedial Action Program (FUSRAP), which was transferred from the Department of Energy in 1997. Although major projects require congressional approval, the Corps' Continuing Authority projects, which must cost under $5 million, can take care of emergency repairs to streambanks and shorelines, small beach erosion control projects, Section 107 Small Navigation Projects, projects to mitigate shore damage at federal navigation projects, small flood control projects, and snagging and clearing for flood control. Some types of projects have federal cost limits of $500,000. Depending upon the type of project, cost sharing may be 50 percent federal, 80 percent federal, or potentially more complicated. For most assistance, preapplication consultation and coordination is essential and the application is simply a letter to the District Engineer, indicating clear intent to provide all required local participation.

Actual Use: The Corps spends about $500 million a year on environmental activities. The Continuing Authorities Program had $50 million for Fiscal Year 1998 and the President's budget requests $47 million for Fiscal Year 1999. Recent projects include work to prevent Judsonia, Arkansas', sewage lagoon levee from collapsing into the Little Red River and plans to combine structural flood control with creation of fish and wildlife habitats in New Jersey's Raritan River Basin.

Potential Use: State and local governments can work with the Corps' District Engineer to define environmentally sensitive project objectives and identify realistic sources of the non-federal share of costs.

Advantages: The Continuing Authorities Program eliminates the need for project-specific congressional authorizations for relatively small projects and the federal share of costs can make such projects affordable for state and local governments.

Limitations: Projects must be engineering feasible, economically justified, and complete within themselves.

Reference for Further Information: Contact U.S. Army Corps of Engineers, Directorate of Civil Works, 20 Massachusetts Avenue, NW, Washington, DC 20314-1000; Phone: 202-272-1975; Internet: **www.usace.army.mil/**.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
ENVIRONMENTAL EDUCATION AND TRAINING GRANTS

Description: The National Environmental Education Act authorizes project grants to establish environmental education and training programs. EPA's Office of Environmental Education runs an Environmental Education and Training Program (EETP), to train educational professionals in the development and delivery of environmental education programs, and Environmental Education Grants (EEG), to support projects to design, demonstrate, or disseminate practices, methods or techniques related to environmental education and training. EETP supports classroom training in environmental education and studies including environmental sciences and theory, educational methods and practices, environmental career or occupational education, and topical environmental issues and problems. It also supports development of environmental education programs and curricula, including those to meet the needs of diverse ethnic and cultural groups. EEGs support the design, demonstration, or dissemination of environmental curricula, including development of educational tools and materials. Projects must focus on improving environmental education teaching skills, or educating communities, the general public, teachers, or students about public health, or building State, local or tribal government capacity to develop environmental education programs.

Actual Use: In Fiscal Year 1997 EPA awarded a small grant to Haskell Indian Nations University to support extension of environmental education to under-served American Indian audiences through distance learning (See **Section 2.C., Agriculture: RUS – Distance Learning and Telemedicine Loans and Grants)**. Large awards have been made to the University of Michigan and the North American Association for Environmental Education. In Fiscal Year 1997, grant obligations totaled $1.95 million. For Fiscal Years 1998 and 1999, grant obligations are estimated at $1.95 and $1.82 million, respectively.

Potential Use: Environmental Education Grants can be used to develop a grass-roots capability to understand and evaluate environmental conditions and measures proposed to address them.

Advantages: Grants make environmental education projects feasible in circumstances in which they are not otherwise possible. Environmental education prepares voters to deal rationally with critical issues which might be manipulated by vested interests.

Limitations: Funds cannot be used for acquisition of real property, including buildings, or the construction or substantial modification of any building. These grants require a 25% non-federal match and the training program grants are for five years subject to the availability of funds.

Reference for Further Information: U.S. EPA, Office of Communications, Education and Public Affairs, Environmental Education Division, Mail Code 1704, 401 M Street, SW, Washington, DC 20460, Telephone: 202-260-4965, Fax: 202-260-4095, Internet: **www.epa.gov/.**

ENVIRONMENTAL PROTECTION AGENCY (EPA)
ENVIRONMENTAL JUSTICE GRANTS TO SMALL COMMUNITY GROUPS

Description: The Environmental Protection Agency's (EPA's) Environmental Justice Initiative was established in 1994 by Executive Order 12898. Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. EPA's Office of Environmental Justice also provides funds to EPA Regional Offices for small grants (up to $20,000) to community groups. Applications are submitted to EPA regional offices, which select projects and award grants.

The Environmental Justice Small Grants Program provides financial assistance to eligible non-profit, tax-exempt, incorporated community groups and federally recognized tribal governments that are working on or plan to carry out projects to address environmental justice issues. Grants may be used for education and awareness programs, technical assistance in accessing available public information, technical assistance with gathering and interpreting existing environmental justice data, and activities such as river monitoring and pollution prevention for environmental justice purposes. Education programs can include provision of environmental justice training for teachers or related personnel as well as design, demonstration or dissemination of environmental justice curricula, education tools and materials.

Actual Use: In Fiscal Year 1997, 139 grants totaling approximately $2.7 million were awarded. The program was funded at $2.5 million in fiscal 1998 and 125 were awarded. Funding in Fiscal Year 1999 is estimated to be $2 million.

Potential Use: Community groups can use small grants to employ technical advice and media services to help residents understand environmental information that provides a basis for concerted action to protect the community's environmental health.

Advantages: Grants can pay for technical assistance, thereby enabling community groups to deal effectively with information needed to undertake a variety of environmental justice activities. There is no match requirement, making the program very practicable for low-income communities.

Limitations: Individual grants may not exceed $20,000. Grant funds may not be used to acquire real property or to construct or modify building.

Reference for Further Information: Environmental Protection Agency, Office of Environmental Justice, Mail Code 2201A, 401 M Street, SW, Washington, DC 20460, Telephone: 202-564-2515 or 800-962-6215, E-mail: environmental-justice-epa@epa.gov,Internet: **www.epa.gov/.**

ENVIRONMENTAL PROTECTION AGENCY (EPA) ENVIRONMENTAL MONITORING FOR PUBLIC ACCESS AND COMMUNITY TRACKING (EMPACT) GRANTS

Description: The EMPACT grants program is a pilot program designed to provide public access to clear, understandable, timely and accurate environmental monitoring data in at least 75 of the 86 larger metropolitan areas. The purpose is to assist the public in day-to-day decision-making about their health and the environment. The emphasis is on active partnerships between local and state government, research institutions, non-governmental organizations, the private sector, and the federal government in the use of advanced and innovative technologies to monitor environmental conditions and communicate clearly understandable, time-relevant and credible information to the lay public. Proposed partnerships must be established with formal agreements which outline the roles and responsibilities of individual partners. Each application must include provision for an Internet home page used for describing the program and for posting local environmental data. Grant or cooperative agreement awards range from $250,000 to $600,000 for a period of 12 to 24 months.

Actual Use: This is a new $3.5 million pilot program, for which full applications were due on May 15, 1998.

Potential Use: If the program is expanded, it could support provision of contemporaneous environmental information in a form readily understood by and useful to voters and taxpayers.

Advantages: Federal funding can facilitate the public understanding of environmental information that is essential for reasoned decision making in both public and private policy arenas.

Limitations: While it may yield valuable experience, this pilot program is for the most populous metropolitan areas and there is no assurance that it will be expanded or continued.

Reference for Further Information: Contact Environmental Protection Agency, Office of Research and Development, National Center for Environmental Research and Quality Assurance, Environmental Engineering Research Division, Mail Stop 8722R, Washington, DC 20460, Telephone: 202-564-6824, Fax: 202-565-2446, E-mail: karn.barbara@epa.gov, Internet: **es.epa.gov/ ncerqa/rfa/empact.html.**

ENVIRONMENTAL PROTECTION AGENCY (EPA) PERFORMANCE PARTNERSHIP GRANTS

Description: Performance Partnership Grants (PPGs) are multi-program grants made to State or Tribal agencies by EPA from funds allocated and otherwise available for categorical grant programs. They are voluntary and provide States and Tribes the option to combine funds from two or more categorical grants into one or more PPGs. PPGs are authorized by the 1996 Omnibus Consolidated Rescissions and Appropriations Act (PL 104-134). The authority covers the following sixteen program grants funded from EPA's State and Tribal Assistance Grants appropriation:

1. Air pollution control (CAA section 105);
2. Water pollution control (CWA section 106);
3. Nonpoint source management;
4. Water quality cooperative agreements (CWA section 104(b)(3));
5. Wetlands program development CWA section 014(b)(3));
6. Public water supervision (SDWA sections 1443(a) and 1451(a)(3));
7. Underground water source protection (SDWA section 1443(b));
8. Hazardous waste management (Solid Waste Disposal Act section 3011(a)):
9. Underground storage tank (Solid Waste Disposal Act section 2007(f)(2));
10. Radon assessment and mitigation (TSCA section 306);
11. Lead-based paint activities (TSCA section 404(g));
12. Toxics compliance and monitoring (TSCA section 28);
13. Pollution prevention incentives for States (PPA section 6605);
14. Pesticide cooperative enforcement (FIFRA section 23(a)(1));
15. Pesticides and program implementation (FIFRA section 23(a)(1))
16. Pesticide applicator certification & training/pesticide program (FIFRA section 23(a)(2)); and
17. General Assistance Grants to Indian Tribes (Indian Environmental General Assistance Act).

Actual Use: States began to seek PPG authority and negotiate with EPA in FY 1997.

Potential Use: All fifty States and the Tribal agencies could negotiate and implement PPGs allowing them increased flexibility in implementing and funding environmental priorities. $169,900,000 in grants were obligated in Fiscal Year 1997.

Advantages: PPGs give States and Tribes more flexibility to address their highest environmental priorities, thus increasing equity and environmental incentives. They provide incentives to States and Tribes to improve environmental performance and links between program goals and outcomes. PPGs also cut administrative burdens/costs for recipients and EPA by reducing the numbers of grant applications, budgets, work plans and reports. EPA will build partnerships with States and Tribes via shared goals and division of responsibilities.

Limitations: No extra funds are available via use of PPGs. States and Tribes must first develop environmental indicators and performance measures to ensure progress is made to agreed on goals.

Reference for Further Information: U.S. EPA, Office of the Administrator, Office of Regional Operations and State/Local Relations, 401 M Street, SW, Washington, D.C. 20460, Mail Code:1501.

ENVIRONMENTAL PROTECTION AGENCY (EPA) PROGRAM GRANTS

Description: Federal grants for various purposes including State and local program research, demonstrations, development, and implementation. The amount available, application criteria, and requirements differ from grant to grant, depending on Congressional authorization and internal EPA grant policies. Some grant programs are specifically authorized for a particular purpose, while other grant programs give significant discretion to the supervising EPA office.

Actual Use: The table on the following page provides a partial list of EPA grants, organized by the office that administers the grant. This list is provided only as an example; it is not necessarily comprehensive or current, since grants change from year to year according to Congressional authorization. Historically, EPA grants have funded both State and local programs in all environmental media. A number of grants are targeted to research and demonstration projects; other grants provide support for State and local program activities that coincide with federal environmental quality priorities.

Potential Use: State and local governments could use EPA grant funds to cover the costs of whatever program activities and/or capital purchases meet the applicable grant criteria.

Advantages: Federal grants provide State and local governments with the means of meeting national environmental quality goals. They may also provide funds otherwise unavailable to State or local programs, thus enhancing equity, environmental incentives, and financial leveraging considerations.

Limitations: Funds may be targeted to specific statutory goals. Programs must compete for limited funds and sign EPA grant agreements to perform activities. Each grant is very specific, thus limiting State and local flexibility.

Reference for Further Information: U.S. EPA grants can be accessed on the Agency's Web Page under: *Grant Programs Administered by EPA* at **http://www.epa.gov/ogd/grants.htm**. The respective EPA program offices will also have information on the grant programs that they oversee. In addition, the *Catalog of Federal Domestic Assistance* contains descriptions of all federal grant programs, including EPA's, and can be obtained at the Government Printing Office. EPA grant programs can also be accessed in the *Catalog* electronically through its Internet Website at **http://aspe.os.dhhs.gov/cfda/ideptaa.htm** - which is the section for Independent Agencies.

PARTIAL LISTING OF EPA PROGRAM GRANTS BY OFFICE, 1995	
Office of Water	Water Pollution Control State and Interstate Program Support Grants (Section 106) Water Quality Control Information System Grants State Public Water System Supervision Grants State Underground Water Source Protection Grants Water Pollution Control -- Lake Restoration Cooperative Agreements National Estuary Program Grants Nonpoint Source Planning Grants Nonpoint Source Set-Asides (under Title VI of the CWA) Wetlands Protection -- State Development Grants
Office of Research and Development	Solid Waste Disposal Research Grants Water Pollution Control -- Research, Development and Demonstration Grants Toxic Substances Research Grants Safe Drinking Water Research and Demonstration Grants Environmental Protection -- Consolidated Research Grants Air Pollution Control Research Grants Pesticides Control Research Grants
Office of Administration	Environmental Protection Consolidated Grants -- Program Support
Office of Prevention, Pesticides, and Toxic Substances	Consolidated Pesticide Compliance Monitoring and Program Pollution Prevention Grants Program Cooperative Agreements Toxic Substances Compliance Monitoring Program Grants Asbestos Hazard Abatement (Schools) Assistance Toxic Release Inventory Data Quality Assurance Program

Office of Solid Waste and Emergency Response	Hazardous Waste Management State Program Support Superfund State Core Program Cooperative Agreements Hazardous Substance Response Trust Fund (Superfund) State Underground Storage Tank Trust Fund Program Solid Waste Management Assistance Grants Superfund Innovative Technology Evaluation Program

ENVIRONMENTAL PROTECTION AGENCY (EPA)
SECTION 319 NONPOINT SOURCE POLLUTION CONTROL GRANTS

Description: Section 319(h) of the Clean Water Act provides for formula grants to States and tribes to implement projects or programs that will help to reduce non-point sources of water pollution within identified priority watersheds. All project funding must implement EPA-approved nonpoint source management programs and include at least 40 percent nonfederal match.
Fundable projects include the design, demonstration, implementation, and evaluation of Best Management Practices (BMPs) for animal waste, nonpoint pollution reduction in priority watersheds, groundwater protection from nonpoint sources, public education programs on nonpoint source management (e.g., basin-wide landowner and homeowner education). Also covered now are lake projects previously funded under the Clean Water Act Section 314 Clean Lakes Program. Nonprofit organizations may submit applications to State lead agencies for funds in accordance with the State's work program.

Actual Use: State grants average $2 million and range from $268,651 to $5,310,372. Indian tribe grants average $50,000 and range from $45,000 to $55,000. In Fiscal Year 1997, grant obligations totaled $100 million. Grant obligation estimates for Fiscal Years 1998 and 1999 are $105 million and $200 million, respectively. Best management practices have been designed and implemented for stream, lake and estuary watersheds and for animal wastes and sediment, pesticide and fertilizer control. Several States have used Section 319 funds to support their Farm*A*Syst source water protection programs (see **Section 5.A., Cooperative Extension Systems**).

Potential Use: States can use funds to implement portions of nonpoint source management programs addressing critical priorities.

Advantages: Grant funds can make some otherwise unaffordable water quality activities feasible.

Limitations: States must provide a non-federal match of at least forty percent and meet maintenance of effort requirements. Only $100 million is available nationally and projects or programs must be conducted within the state's non-point source priority watersheds.

Reference for Further Information: U.S. EPA, Office of Wetlands, Oceans and Watersheds, Assessment and Watershed Protection Division, Nonpoint Source Control Branch, Mail Code: 4503F, 401 M Street, SW, Washington, DC 20460; Telephone: 202-260-7100, E-mail: ow.general@epa.gov, Internet: **www.epa.gov/owow/NPS/guide.html**. A description of this grant program can be found in the *Catalog of Federal Domestic Assistance* and at the *Catalog's* World Wide Web site, **http://aspe.os.dhhs.gov/cfda/ideptdoc.htm**.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
SUPERFUND TECHNICAL ASSISTANCE GRANTS

Description: EPA's Office of Solid Waste and Emergency Response administers Superfund Technical Assistance Grants (TAG) for Citizen Groups at Priority Sites. The program provides project grants for incorporated community groups to hire technical advisors who can assist them in interpreting technical information concerning the assessment of potential hazards and the selection and design of appropriate remedies at sites eligible for cleanup under the Superfund program. Funds may be used at sites listed or proposed for listing on the National Priority List (NPL) where cleanup is underway to obtain technical assistance in interpreting information regarding the nature of the hazard, remedial investigation and feasibility study, record of decision, selection and construction of remedial action, operation and maintenance, or removal action.

Incorporated groups of individuals who may be affected by a release or threatened release at any Superfund facility are eligible. Affected individuals are homeowners, landowners and others who can demonstrate direct effects from the site, such as actual or potential health or economic injury. Competing groups are encouraged to consolidate and submit a single application. Only one grant is made per site, for a maximum of $50,000 unless waived for up to an additional $50,000. A twenty percent match, including in-kind contributions, is required unless waived or lowered due to financial burden. The Superfund TAG Handbook provides detailed application instructions.

Actual Use: These grants help citizens acquire technical advisors to help them understand proposed clean-up remedies, better understand the technical problem at the site, and respond to EPA actions. Since the program began in March 1988, EPA has issued 196 awards totaling more than $72 million (including new awards, waivers and deviations). EPA superfund technical assistance grant obligations totaled $700,000 in Fiscal Year 1997 and are projected to be $1,000,000 and $500,000 in Fiscal Years 1998 and 1999, respectively.

Advantages: Technical assistance grants provide resources to help those directly affected by hazardous chemical waste sites to understand the situation and what is being done to correct it.

Limitations: Grants are limited to Superfund site communities and can be no more than $50,000-$100,000 for what is typically a six-year period. Funds cannot be used to develop new information or underwrite legal actions.

Reference for Further Information: U.S. EPA, Office of Solid Waste and Emergency Response, Office of Emergency and Remedial Response, Community Involvement and Outreach Center, Mail Code 5204G, 401 M Street, SW, Washington, DC 20460, Telephone: 703-603-8863; Fax: 703-603-9100; E-mail:superfund.info@epa.gov; Internet: **www.epa.gov/oerrpage/superfnd//web/tools/tag/ index.htm**.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
SUSTAINABLE DEVELOPMENT CHALLENGE GRANTS

Description: This EPA grant program is designed to encourage people, organizations, governments and businesses to work cooperatively to develop flexible, locally-oriented approaches that link place-based environmental management with sustainable development and revitalization. The program funds projects that improve the environment, build sustainable futures for communities, help local economies and encourage partnerships among community groups, businesses, government and others. It looks for projects yielding the greatest environmental and economic benefits, and leverage the most community investment and resources.

Actual Use: The Sustainable Development Grant Program solicits project proposals for grants of up to $250,000. Proposals are received from public entities, agencies, institutions and organizations (such as State and local governments, and federally recognized tribes and regional entities), and non- profit private agencies, institutions and organizations.

The Program obligated $5 million in grants in Fiscal Year 1997. Projects funded have ranged from better forest management practices in New Hampshire to a network of 26 community supported organic farms in the Mid-Atlantic region to a mid-city green projects building materials exchange in Louisiana to a smart wood certification program in Washington.

Potential Use: The program could potentially fund the demonstration of a wide variety of environmentally and economically sustainable projects in all environmental media and program areas. These projects could help identify those practices which show promise of being truly sustainable and those which are not and should be avoided. EPA estimates that the program will have grant obligations in Fiscal Years 1998 and 1999 of $5 million and $9.3 million, respectively.

Advantages: Funding authorities are broad and the program supports an unusually wide range of creative and innovative approaches, and provides support to segments of the private sector. Project support represents seed funding and successful grantees leverage substantial additional public and private resources. Environmental incentives are very high and built into the program.

Limitations: The program requires a nonfederal match of 20 percent of a project's total budget and federal assistance may not exceed $250,000.

Reference for Further Information: U.S. EPA, Office of Air and Radiation, 401 M Street, SW, Washington, D.C. 20460, Telephone Number:202-260-2441, Contact: Pamela Hurt.

ENVIRONMENTAL PROTECTION AGENCY (EPA)
UNDERGROUND STORAGE TANK TRUST FUND PROGRAM GRANTS

Description: EPA's Office of Solid Waste and Emergency Response oversees two grant programs dealing with underground storage tanks. The State Underground Storage Tanks (UST) Program provides project grants to assist state governments in the development and implementation of underground storage tank programs, so as to build their capacity to operate their programs in lieu of the federal program. A high priority is to encourage owners and operators to upgrade or replace their tanks well in advance of the deadline. Owners and operators of UST systems have until December 22, 1998, to upgrade, replace or close substandard systems. The Leaking Underground Storage Tank (LUST) Trust Fund Program provides project grants (cooperative agreements) to support state corrective action and enforcement programs that address releases from underground storage tanks containing petroleum. Funds are used to provide resources for the oversight and cleanup of petroleum releases from underground storage tanks where owners and operators are unknown, unwilling or unable to take corrective actions themselves. States may also oversee responsible party cleanups A ten percent state cost share is required.

Actual Use: The average LUST grant is $1.5 million and the range is from $300,000 to $4.3 million. All 50 states and six territories have cooperative agreements with EPA to conduct cleanups and provide oversight of responsible party cleanups. Some states, such as New York, provide additional funds to support their cleanup efforts. Funding for the grants (cooperative agreements) was approximately $50.3 million in Fiscal Year 1997. Funding estimates for Fiscal Years 1998 and 1999 are $55.25 million and $57.7 million, respectively.

Potential Use: The program can be used not only to solve the immediate problem of leaking underground petroleum storage tanks, but also to raise public awareness of the pollution threat to groundwater.

Advantages: Federal funds make it feasible for states and territories to conduct programs dealing with the environmental threat of leaking underground petroleum storage tanks. The program has been effective, reflecting the specific benefits of cleanup projects and the flexibility afforded the states to consider affordability issues and implement various financing arrangements.

Limitations: The programs are nearing a critical juncture which could lead to premature reductions in effort. The deadline for upgrading or replacing substandard systems is late December, 1998, but some small operators may not yet be in compliance due to financial difficulties.

Reference for Further Information: Contact Environmental Protection Agency, Office of Underground Storage Tanks, Implementation Division, 401 M Street, SW, Washington, DC 20460; Mail Code: 5403G, Telephone: 703-603-7175, Fax: 703-603-9163, Internet: **www.epa.gov/.**

ENVIRONMENTAL PROTECTION AGENCY (EPA)
WETLANDS PROTECTION DEVELOPMENT GRANTS

Description: Environmental Protection Agency (EPA) regional offices administer project grants to State or tribal agencies, interstate/inter-tribal agencies, and local governments in developing new or enhancing existing wetlands protection programs. Grants are intended to encourage wetlands protection program development or to enhance/augment existing effective programs. Project proposals must clearly demonstrate a direct link to increasing a state's, tribe's, or local government's ability to protect its wetlands resources. The required minimum match is twenty-five percent of the total project costs. While projects funded should support the initial development of a wetlands protection program or the enhancement/refinement of an existing program, current priorities are Wetland/Watershed Protection Approach Demonstration Projects and River Corridor and Wetland Restoration Projects.

Actual Use: Each state has received at least one grant. In Fiscal Year (FY) 1997, grant obligations totaled $15 million and grant awards ranged from $1500 to $489,000. Grant obligations are estimated to remain at $15 million for both FY 1999 and FY 2000. Funds have been used to support development of wetland water quality standards which can be used as a primary tool in water quality certification decisions. Funding has been focused on wetlands/watershed protection, approach demonstrations and river corridor and wetlands reservations projects.

Potential Use: Grants can be used to support redesign of wetland and watershed protection programs that need to be changed to reflect evolving demographic and ecological realities.

Advantages: Design or improvement of wetlands protection programs can be made financially possible by these federal grants.

Limitations: Grant funds cannot be used for operational support of wetlands protection programs. The lack of operational support funds is a serious impediment to State involvement in wetlands protection.

Reference for Further Information: U.S. EPA, Office of Wetlands, Oceans and Watersheds, Wetlands Division, 401 M Street, SW, Washington, DC 20460, Mail Code: 4502F, Telephone: 800-)832-7828 or 202-260-1917, Fax: 202-260-2356, Internet: **http://www.epa.gov/OWOW/wetlands/partners.html**.

ENVIRONMENTAL TECHNOLOGY INITIATIVE (ETI)

Description: ETI is an interagency effort led by the U.S. Environmental Protection Agency (EPA) supporting partnerships and projects that promote improved public health and environmental protection by advancing the development and use of innovative environmental technologies. The Initiative promotes innovative technologies that prevent pollution, control and treat air and water pollution, remediate contaminated soil and groundwater, assess and monitor exposure levels and mange environmental protection information.

Actual Use: ETI has provided funding support in excess of $100 million for more than 250 partnerships and projects throughout the United States advancing the development and use of innovative environmental technologies. Many of the partners participating in ETI projects are investing three to four dollars for every ETI dollar invested.

Potential Use: As the costs and an difficulties of meeting environmental challenges grow, the need for new and better environmental technologies will grow. The potential prospects for the environmental technology industry are truly staggering. The United States' environmental technology industry is already a high-wage, high growth industry. More than a million Americans are employed in over 50,000 companies nation-wide. Our market for environmental technology is the largest in the world and global markets are expected to grow by hundreds of billions of dollars in the coming years.

Advantages: Use of the innovative environmental technologies being developed and promoted by ETI partnerships and projects can cut regulatory compliance costs, reduce public health risks, gain superior environmental results, make companies more efficient and competitive, and improve community environmental services. Private sector equity, environmental incentives, and leveraging possibilities are all high.

Limitations: Before innovative environmental technologies can achieve regulatory acceptance, technology developers must decipher and meet a disjointed system of verification requirements in each State where a potential market exists. Once regulatory acceptance is achieved, the innovative technologies must then prove themselves and gain acceptance for actual field use.

Reference for Further Information: U.S. EPA; Office of Policy, Planning, and Evaluation, Policy and Technology Innovations Division, 401 M Street SW, Washington, DC 20460, Mail Code: 2127, ETI Infoline: 202-260-2686, Internet site: **http://www.epa.gov/oppe/eti**.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
FLOOD MITIGATION ASSISTANCE

Description: The Federal Emergency Management Agency (FEMA) provides planning grants to assist communities with development of flood mitigation plans and project grants for implementation of planned measures to reduce flood losses. State agencies, participating National Flood Insurance Program (NFIP) communities, and qualified local organizations are eligible. Planning grants support assessment of long-term risk of flood damage to homes and other structures insurable under the NFIP and identification of actions needed to reduce risk of flood losses. Communities must have Flood Mitigation Plans to be eligible for project grants. Implementation project grants may support measures such as dry flood-proofing, elevation, relocation, acquisition, or demolition of insured structures, erosion control and drainage improvements, and beach nourishment activities such as planting of dune grass. They can be used for minor, localized structural projects, such as erosion control and drainage improvements, that are not fundable by state or other federal programs.

Actual Use: The Flood Mitigation Assistance program obligated about $17 million in grants in Fiscal Year 1997, so risk assessments and mitigation plans were principal activities. FEMA estimates that grant obligations will be $20 million in Fiscal Years 1998 and 1999, respectively. The program's accomplishments, including examples of the types of projects funded, are contained in a Biennial Report to the Congress. This report can be obtained from FEMA upon request.

Potential Use: This program has the potential to help support coastal watershed protection and dune preservation activities.

Advantages: The Flood Mitigation Assistance program can in specific circumstances fill funding gaps left by other federal and State programs. FEMA may fund up to seventy-five percent of the cost of eligible activities. Each State and territory receives a guaranteed base funding for Planning ($10,000) and Projects ($100,000).

Limitations: Communities that have been suspended from the National Flood Insurance Program are not eligible. This is a relatively small program. A twenty-five percent non federal match is required.

Reference for Further Information: U.S. Federal Emergency Management Agency (FEMA), Mitigation Directorate, 500 C Street, SW, Washington, DC 20472, Telephone: 202-646-4621, Internet: **www.fema.gov/home/MIT/fmasst.htm**. FEMA Regional Offices in Boston, MA, New York, NY, Philadelphia, PA, Atlanta, GA, Chicago, IL, Denton, TX, Kansas City, MO, Denver, CO, San Francisco, CA, and Bothell, WA (check with FEMA Headquarters for appropriate contracts and numbers).

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)
HAZARD MITIGATION GRANTS

Description: The Federal Emergency Management Agency (FEMA) provides State and local governments project grants to implement measures that will permanently reduce or eliminate future damages and losses from natural hazards. A State Administrative Plan and State 409 Plan, which describe projects, are required for FEMA to identify a need for funding assistance. The State solicits, reviews, prioritizes and selects applications, then forwards them with project narratives, descriptions and fact sheets to FEMA for review. FEMA can fund up to seventy-five percent of eligible project costs and the State or project applicants must provide the nonfederal share. State agencies, local governments, public entities, private non-profit organizations, Native American Tribes, and Alaskan Native villages are eligible for subgrants from the States. Funds may be used for the acquisition of real property.

Actual Use: FEMA funded 51 projects in Fiscal Year 1997 and 45 in Fiscal Year 1998. Drainage improvement and vegetation management projects are among those the types of environmentally-related activities that have been funded.

Potential Use: Real property can be required for treatments which will meet environmental objectives while mitigating natural hazards.

Advantages: The federal share can be up to seventy-five percent of total eligible costs, making otherwise unaffordable projects feasible.

Limitations: The program is based on fifteen percent of all other public and individual disaster grants. Projects must be in Presidentially declared disaster areas and applicants must work through the state agency that is responsible for setting priorities for funding. The State or project applicant must provide a twenty-five percent match. The nonfederal match, however, can be a combination of cash, in-kind services, or materials.

Reference for Further Information: U.S. Federal Emergency Management Agency (FEMA), Mitigation Directorate, Program Implementation Division, 500 C Street, SW, Washington, DC 20472, Telephone: 202-646-4621, FEMA Regional Offices in Boston, MA, New York, NY, Philadelphia, PA, Atlanta, GA, Chicago, IL, Denton, TX, Kansas City, MO, Denver, CO, San Francisco, CA, Bothell, WA, Internet: **www.fema.gov/mit/hmgp.htm**.

FOUNDATION AND CORPORATE GIVING

Description: Foundation and corporate giving are an important source of funding for activities in education, health and human services, civic and community affairs, and culture and the arts. They are also a significant and growing source of funding for environmental projects. Most such funding is in the form of grants for well-defined projects (i.e., time, cost, and deliverables) that meet the immediate priorities of the funding source, and are not funded by governments.

Actual Use: More than 7,500 major foundations in the United States with assets totaling about $170 billion make annual donations exceeding $10 billion. Corporations alone support 2,300 philanthropic programs in the form of foundations or as direct-giving programs. In 1995, 703 foundations made environmental gifts totaling more than $425 million.
The Global Futures Foundation is a nonprofit environmental foundation that supports integrated programs leading to source reduction, pollution prevention, low-cost market development and incentive driven regulatory structures which reduce economic and environmental costs. Patagonia, Inc. is a clothing firm that devotes 1% of sales to its environmental grants program and gave more than $1.1 million in 1995-6 to over 200 projects for preserving and restoring the environment.

Potential Use: Foundation and corporate giving could fund innovative environmental projects in many areas, and total support could reach more than a billion dollars. Grants typically go for research, education, and demonstration projects, but also could be used to fund projects involving planning, monitoring, and technology.

Advantages: These grants are not directly dependent on tax dollars and grant conditions may be less burdensome. Innovation is encouraged and equity provided since grantees are not supported by governments. Grantees are forced to leverage other resources or become self-sustaining.

Limitations: Funding levels may be highly variable, competition for resources is very intense and awards are usually directed to innovative projects. Environmental impacts may be limited if projects are too small and esoteric. Since funding is typically for very short, defined periods of time, it is a real challenge for grantees to succeed or become independent.

Reference for Further Information: *The Foundation Directory* features the nation's largest foundation funders. The *National Directory of Corporate Giving* profiles over 2,300 corporate philanthropic programs. These books are available from the Foundation Center, 79 Fifth Avenue, New York, NY 10003-3076, Telephone: 212-620-4320. See also Environmental Data Resources, Inc., *Environmental Grantmaking Foundations, 1995 Directory*, Rochester, NY, 1996.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)
COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)
ECONOMIC DEVELOPMENT INITIATIVE GRANTS

Description: The CDBG Economic Development Initiative (EDI) awards project grants to help local governments eligible under HUD's Section 108 Loan Guarantee Program carry out economic development projects. The grants must enhance the security of loans guaranteed under the Section 108 Program or improve the viability of projects financed under the Section 108 Program.

Actual Use: Fiscal Year 1996 assistance ranged from $975,000 to $3.5 million, with an average grant of $1.8 million. For Fiscal Year 1998, EDA estimates $38 million in funding for 50-75 standard EDI projects and $25 million for funding for up to 25 brownfields projects. In Fiscal Year 1999, $ 400 million in EDI funds will be allocated to the proposed Community Empowerment Fund and $50 million in funds will be allocated for up to 50 brownfields projects.

Projects funded include a wide range of economic development activities including commercial, industrial and economic development revolving loan funds. Eligible activities include acquisition of real property; rehabilitation of publicly-owned real property, housing rehabilitation, economic development activities, acquisition, construction reconstruction, or installation of public facilities, and, in the colonias, public works and other site improvements. Brownfields EDI grants will result in a similar range of activities for qualified Brownfield sites.

Potential Use: Depending on interpretation of Section 108 criteria, grants might finance or leverage loans funding facilities in water, wastewater, solid waste, recycling, waste-to-energy, and small business air quality improvements.

Advantages: Equity and leveraging opportunities are high and built into the program. Some very specific environmental projects have been completed in low-income areas.

Limitations: EDI grant funds only be used in conjunction with projects and activities assisted under the Section 108 loan Program. Principal beneficiaries of the grants must be low and moderate income persons. Many non-environmental projects are funded and payment is on a cost-incurred basis.

Reference for Further Information: The U.S. Department of Housing and Urban Development (HUD) publication, *Programs of HUD,* contains a description of this CDBG program. Information on it can also be found in the *Catalog of Federal Domestic Assistance* and its Internet site at **http://aspe.os.dhhs.gov/cfda/idepthud.htm** - which has links to these HUD grants.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)
COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)
ENTITLEMENT GRANTS

Description: The CDBG Entitlement Grants Program seeks to develop viable urban communities by providing decent housing and a suitable living environment, and by expanding economic opportunities. It supports activities that benefit low-to moderate income citizens in cities in Metropolitan Statistical Areas (MSAs) designated by OMB as a central city of the MSA and other cities over 50,000 in MSAs and qualified urban counties of at least 200,000 (excluding entitlement cities located in such counties). Federal formula grants based on population, income, housing, and growth lag are awarded to eligible entities. Specific activities that can be carried out include acquisition of real property, relocation and demolition, rehabilitation of residential and nonresidential structures, and the provision of public facilities and improvements, such as water and wastewater treatment facilities.

Actual Use: HUD obligated more than $3 billion in entitlement grants in fiscal year (FY) 1997 and plans to obligate approximately that much in both FYs 1998 and 1999. Nine hundred and eighty-six local governments were eligible to receive these grants in FY 1998. Grantees must certify that at least seventy percent of grant funds received are spent for activities that principally benefit low- and moderate-income persons. Water and wastewater treatment facilities and brownfields-related activities are among the types of eligible projects that have been funded by these important grants.

Potential Use: Depending on interpretation of grant criteria, these CDBG grants might be used to increasingly finance brownfields cleanup and redevelopment activities, as well as air pollution and solid waste facilities.

Advantages: This grant program is HUD's major program and has been relatively stable.

Limitations: These grants assist a limited number of relatively large communities with distressed areas. To apply, communities must develop and submit a number of detailed documents including a Consolidated Plan, annual action plan and certifications. Post award requirements include annual performance reports, audits, and detailed records maintenance. Many non-environmental projects are funded, competition is fierce, and assistance is provided on a reimbursement basis.

Reference for Further Information: The U.S. Department of Housing and Urban Development (HUD) publication, *Programs of HUD*, contains a description of this CDBG program. Information on it can also be found in the *Catalog of Federal Domestic Assistance* and its Internet site at **http://aspe.os.dhhs.gov/cfda/idepthud.htm** - which has links to these HUD grants.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)
COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)
SMALL CITIES PROGRAM NONENTITLEMENT GRANTS

Description: These grants support decent housing, a suitable living environment, and expanded economic opportunities for low and moderate income persons. They fund activities in nonentitlement areas (cities with 50,000 or less people and counties with less than 200,000 people that do not receive entitlement grants) in New York and Hawaii. Eligible activities include the acquisition, rehabilitation or construction of public works facilities and improvements, clearance, housing rehabilitation, code enforcement, home ownership assistance, relocation payments, economic development, existing urban renewal projects, and certain public services.

Actual Use: HUD obligated just over $60 million for these grants in fiscal year (FY) 1997 and plans to obligate like amounts in FYs 1998 and 1999. Water and wastewater systems are among the projects funded by this assistance. State fund allocations are determined by formula taking into account population, income levels, per room housing density; age of housing, and other factors.

Potential Use: Depending on HUD interpretation of grant criteria, these grants might be used to finance air pollution control, solid waste, recycling, and waste-to-energy facilities, as well as a range of brownfields cleanup and redevelopment activities.

Advantages: Environmental justice and equity concerns in terms of addressing ability-to-pay are good. Leveraging possibilities with State revolving loans and rural utility water and wastewater funding and/or pre-financing are high.

Limitations: Priority is given to grants that benefit low and moderate income persons or aid in the elimination of slums or blight. At least seventy percent of each grant made must benefit low and moderate income persons. For metropolitan areas, low and moderate income is a level equal to or less than HUD's Section 8 low income limit. For non-metropolitan areas, low and moderate income is defined as eighty percent of the median income for those areas in the State.

Reference for Further Information: The U.S. Department of Housing and Urban Development (HUD) publication, *Programs of HUD*, contains a description of this CDBG program. Information on it can also be found in the *Catalog of Federal Domestic Assistance* and its Internet site at **http://aspe.os.dhhs.gov/cfda/idepthud.htm** - which has links to these HUD grants.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT (HUD)
COMMUNITY DEVELOPMENT BLOCK GRANTS (CDBG)
STATES' GRANTS PROGRAM NONENTITLEMENT GRANTS

Description: These grants help provide communities with decent housing, a suitable living environment and expanded economic opportunities. They finance activities in nonentitlement areas (cities with 50,000 or less people and counties with less than 200,000 people which do not receive entitlement grants) that benefit low to moderate income citizens. Puerto Rico and all States except New York and Hawaii receive funds to administer these grants to localities. Each State develops its own program and funding priorities. Fundable activities include buying real property, relocation and demolition, rehabilitation of residential and nonresidential structures, and providing public facilities and improvements such as water and wastewater treatment facilities.

Actual Use: HUD obligated more than $1.2 billion in nonentitlement grants in fiscal year (FY) 1997 and plans to obligate about as much in both FYs 1998 and 1999. Grantees must ensure that seventy percent of grant funds benefit low- and moderate-income persons. Water and wastewater treatment systems are among the projects eligible for assistance. State allocations are set by formula using population, income levels, per room housing density; age of housing, and other factors.

Potential Use: Depending on each State's interpretation of grant criteria, CDGB entitlement grants might also be used to finance air pollution control, solid waste, recycling, and waste-to-energy facilities, as well as a range of brownfields cleanup and redevelopment activities.

Advantages: The program is equitable from an affordability perspective. Leveraging can be high, as communities can combine State revolving loans, as well as rural utility grants and loans, for water and wastewater systems.

Limitations: Grants are limited to low and moderate income communities experiencing distress. For metropolitan areas, low and moderate income is a level equal to or less than HUD's Section 8 low income limit. For non-metropolitan areas, it is defined as eighty percent of the median income for those areas in the State. A State may only use up to $100,000 plus two percent of its grant to administer the program and must match each federal dollar over $100,000 used for administration with a dollar of its own.

Reference for Further Information: The U.S. Department of Housing and Urban Development (HUD) Fact Sheet, State Community Development Block Grant Program, describes the program. HUD, Office of Block Grant Assistance, Small Cities Division, 415 7th Street, SW, Washington, DC 20410, Telephone: 202-708-1322. The HUD publication, *Programs of HUD*, also has a description of this CDBG program. Information on it can also be found in the *Catalog of Federal Domestic Assistance* and its Internet site at **http://aspe.os.dhhs.gov/cfda/idepthud.htm**.

DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
NATIONAL COASTAL WETLANDS CONSERVATION GRANTS

Description: The Department of the Interior's Fish and Wildlife Service administers the Coastal Wetlands Conservation Grants Program. The Division of Habitat Conservation and the Division of Federal Aid review project selections by the agency's regional offices. All coastal states except Louisiana are eligible to submit project proposals, which are due by September 1 each year. Projects are undertaken by state agencies having responsibility for acquisition of interests in coastal lands or waters and for restoration, management or enhancement of coastal wetlands ecosystems. Projects must provide for the long term conservation of coastal lands or waters and the hydrology, water quality and fish and wildlife dependent thereon. The federal share of project costs cannot exceed fifty percent except that it may be seventy-five percent if the State has established a trust fund for the purpose of acquiring coastal wetlands, other natural areas or open spaces. Although program applicants must be State/territorial agencies, project participants may include State, county and municipal agencies and non-governmental entities.

Actual Use: Grant funds are used to restore wetlands under state/territorial ownership and to acquire new wetlands. The average grant is $507,840 and the range has been from $19,428 to $1,609,731. In fiscal 1997, 18 proposals covering 10,741 acres received approximately $9.1 million. 928 acres were restored and 2,082 acres were acquired.

Potential Use: The program is authorized through fiscal 1999, for which funding will be supported by the allocation of eighteen percent of the Sport Fish Restoration Account up to $15 million. Around $7 million has been available annually.

Advantages: Up to seventy-five percent of the cost of placing critical wetlands in protective public ownership can be covered by federal funds.

Limitations: This is a relatively small program which depends heavily upon State participation. It is limited by law to coastal States.

Reference for Further Information: Contact U.S. Department of the Interior, Fish and Wildlife Service, Division of Federal Aid, Arlington Square, Room 140, 4401 North Fairfax Drive, Arlington, VA 22203, Telephone: 703-358-2156, Fax: 703-358-1837, E-mail: Robert_Pacific@mail.fws.gov, Internet: **www.fws.gov/**.

DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
NORTH AMERICAN WETLANDS CONSERVATION ACT GRANTS

Description: The North American Wetlands Conservation Act Grant Programs promote long term conservation of wetland ecosystems and the waterfowl and other migratory birds, fish and wildlife that depend upon such habitat. It provides project grants on a matching basis for acquisition, enhancement and restoration of wetlands and associated habitat. The programs are meant to encourage voluntary public-private partnerships to conserve wetland ecosystems by creating an institutional infrastructure and providing a source of funding. The funding cap for Standard Grants is $1 million, while the cap for Small Grants is $50,000. The nine-member North American Wetlands Conservation Council, created by the North American Wetlands Conservation Act of 1989, reviews the merits of wetlands conservation proposals submitted for funding. The Council considers the extent to which the project fulfills the purpose of the Act, the North American Waterfowl Management Plan, or the Canadian-Mexican-U.S. Tripartite Agreement, as well as its consistency with the National Wetlands Priority Conservation Plan developed under the Emergency Wetlands Resources Act of 1986. While anyone can apply for a grant at anytime, the Council goes through the proposal selection process three times a year. It then makes recommendations to the Migratory Bird Conservation Commission for consideration of funding.

Actual Use: In March 1998, nineteen U.S. projects in fifteen states were approved for about $10.2 million in federal funding, to be matched by almost $24.5 million from partners. For example, $655,000 was approved for the Teton River Valley Ecosystem Project in Idaho.

Potential Use: The programs can fund acquisition of real property interests such as conservation easements, fee simple title, and wildlife management agreements.

Advantages: The programs take a non-regulatory approach encouraging voluntary partnerships to develop and implement wetland conservation projects to benefit wetland dependent wildlife.

Limitations: The current funding authorization expires at the end of fiscal 1998; however, reauthorization appears likely.

Reference for Further Information: For a copy of the *1998 Grant Application Instructions*, contact the U.S. Department of the Interior, Fish and Wildlife Service, North American Wetlands Conservation Council Coordinator, North American Waterfowl and Wetlands Office, 4401 North Fairfax Drive, Room 110, Arlington, VA 22203, Telephone: 703-358-1784, E-mail: r9arw_nawwo@mail.fws.gov, Internet: **www.fws.gov/.**

STATE GRANT PROGRAMS

Description: Almost all States have environmentally-related grant programs for eligible local governmental units, and sometimes the private sector. Since the source and type of grant varies considerably from state-to-state, localities should obtain copies of State grant catalogs for specific information. State grants fall into several categories: (1) annually appropriated grant monies; (2)
federally mandated grants; and (3) grants arising from referendum bond acts, which historically have been the largest source of State grant monies.

Actual Use: Annually appropriated States grants historically have been small, and typically provide funds for programs (as opposed to construction) for which there has been no federal funding, e.g., water and wastewater operator training, drinking water and air pollution, and nonpoint source control. Federally mandated grants include the twenty percent match required for the SRF, and other environmental requirements such as facility operator certification, monitoring and testing, and small business clean air audits. By far the largest State grants arise from environmental bond acts passed by referendum, which historically have been the main source of funding for environmental infrastructure, parks and conservation, and solid and hazardous waste. Recent years have seen a surge in large State referendum bond acts. For example, New York's 1996 $1.75 billion bond act included money for drinking water grants, watersheds, small business (water and air) and brownfields grants. California passed a $994 million bond act financing drinking water grants, New Jersey a $340 million bond act which included incentive matching grants for localities and nonprofits, Massachusetts a $399 bond act which included watershed and farmland protection grants, and Florida a $300 million bond act which included habitat protection grants.

Potential Use: States have become increasingly creative in leveraging grants, and providing assistance to non-traditional clients such as nonprofits and small businesses. Many States now provide matching incentive grants to localities for local fundraising and to nonprofit organizations, such as in New Jersey and New York. Minnesota and Maryland provide dollar-for-dollar matching grants for private contributions for wildlife and wetlands protection, including private mitigation.

Advantages: State grants can be directed to pressing compliance needs and small communities, thus reducing costs and enhancing equity. State grants may be more flexible and entail less red tape than federal assistance, and can be further leveraged.

Limitation: Historically, State grants have not been large or predictable. Funding tends to come and go, and monies are available on a first-come-first-serve basis, favoring projects ready to proceed. Many restrictions still apply, such as on grants to non-profits and individuals. Grants, compared to loans, may result in more costly and slower projects, since the money is regarded as "free".
Reference for Further Information: Contact State Budget Offices for further information.

STATE REVOLVING FUND (SRF)
DRINKING WATER PRINCIPAL SUBSIDIES

Description: The 1996 Amendments to the Safe Drinking Water Act (SDWA), which established the Drinking Water State Revolving Loan Fund program (DWSRF) capitalized by federal grants and State matching grants, provides for loan subsidies in the form of "forgiveness of principal" to communities defined as disadvantaged. A principal subsidy is the same as grant. The SDWA provisions from creation of revolving loan funds permits states to use up to 30% of the federal capitalization grants for principal subsidies. States must established affordability criteria which guide the circumstances when a "disadvantaged" community may received a principal subsidy. Affordability criteria typically are based on the target service charge compared to median household income. Principal subsidies are not permitted under the Clean Water SRFs.

Actual Use: Most States plan to use the principal subsidy authority under the DWSRF. Principal subsidies are available to private public purpose drinking water projects as well as publicly-owned projects. States with many small communities and low median household incomes may reach the 30% limit set by the Act. However, in many States the loan demand is so large that principal subsidies will be a smaller percentage than this limit. In New York, principal subsidies come from environmental bond act monies instead of SRF funds, and may provide up to 75% of project funding.

Potential Use: Principal subsidies may allow drinking water projects to proceed which otherwise wold be delayed or not undertaken. They also may be combined with SDWA provisions allowing a 30-year loan instead of the 20 year limit on most SRF loans. SRFs can set aside a set amount of monies for investment purposes to assist in subsidizing loans. For a $100,000 principal subsidy, an SRF could invest $71,430 a year at 7%, yielding $5,000 a year for 20 years to pay for the subsidy.

Advantages: SRF grants make projects more affordable for smaller communities and may be the crucial factor is whether such a community proceeds or not. Hence, accessibility as well as equity are enhanced. SRFs can leverage their subsidy potential through sound investments. Based on a states affordability levels, projects entitled to principal subsidies can be prequalified for assistance, thus easing administrative burdens and uncertainties.

Limitations: Principal subsidies reduce the leveraging potential of loanable funds, as well as their revolving nature. Thus, States must be very careful not to undercut the long term solvency of SRF funds by providing too many grants as opposed to loans. Accessibility to loans for other communities declines by the amount of principal subsidies offered.

Reference for Further Information: Localities should consult their State DWSRF officials to determined principal subsidies policies and affordability criteria. State Intended Use Plans published annually will describe principal subsidy benefit recipients.

DEPARTMENT OF TRANSPORTATION
FEDERAL TRANSIT ADMINISTRATION
LIVABLE COMMUNITIES INITIATIVE

Description: The Federal Transit Administration (FTA) Livable Communities Initiative supports sound environmental practices, as part of its effort to improve the quality of life by promoting compact communities with user-friendly transit linked to related development. Metropolitan and other planning organizations that get FTA planning funds must adopt Livable Communities elements in their planning efforts. Eligible activities include assessment of environmental, social, economic, land use, and urban design impacts; evaluation of best practices; participation by community groups; and development of innovative urban design, land use, and zoning. Limited funding exists for technical assistance, planning, modeling, urban design, and community involvement. Recipients may include transit operators, metropolitan planning bodies, local governments, States, planning agencies and other public bodies. Non-profit, community and civic groups are encouraged to join in project planning and development. Eligible capital activities or capital enhancements of demonstration projects include property acquisition, restoration or demolition of structures, site preparation, utilities, building foundations, walkways, and open space physically and functionally related to mass transportation facilities. Also eligible are enhancements to transit stations, park-and-ride lots and transfer facilities with community services such as day care, health care and public safety. Funding is provided by the Intermodal Surface Transportation Efficiency Act of 1991.

Actual Use: Among the Livable Communities projects are the Orlando Park and Play Garage Child Care Center and the Health Station at Roxbury Crossing.

Potential Use: Projects can emphasize sound environmental practices reducing automobile trips, conserving open space, encouraging green areas, and improving air quality.

Advantages: The program recognizes that the purpose of federal transit laws is to improve the quality of life through use of transit, not simply to fund costs of transit systems.

Limitations: The physical or functional tie to transit eliminates many otherwise appropriate projects. Project funding depends on the interest of transit planning and operating agencies.

Reference for Further Information: U. S. Department of Transportation, FTA regional offices: Cambridge, MA, Phone: 617-494-2055; New York, NY, Phone: 212-264-8162; Philadelphia, PA, Phone: 215-656-6900; Atlanta, GA, Phone: 404-347-3948; Chicago, IL, Phone: 312-353-2789; Arlington, TX, Phone: 817-860-9663; Kansas City, MO, Phone: 816-523-0204; Denver, CO, Phone: 303-844-3242; San Francisco, CA, Phone: 415-744-3133; Seattle, WA, Phone: 206-220-7954. Internet: **www.fta.dot.gov/.**

DEPARTMENT OF TRANSPORTATION
TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

Description: The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 set new standards for environmental sensitivity. The Transportation Equity Act for the 21st Century (TEA-21) signed June 9, 1998, reauthorized, modified and extended ISTEA largely continuing the improved relationship between transportation and the environment. ISTEA made wetlands mitigation efforts eligible under both the National Highway System and Surface Transportation Program. Eligible activities included mitigation banking, wetland preservation and restoration efforts, and State and regional wetland planning. TEA-21 retains wetland mitigation project eligibility and adds natural habitat. It allows up to 20% of reconstruction, resurfacing, rehabilitation or restoration project costs for environmental restoration and pollution abatement, including retrofit or construction of stormwater treatment systems to address environmental problems caused or contributed to by transportation facilities. Other eligible activities, including purchase of scenic easements, scenic beautification and landscaping, preservation of abandoned railway corridors, and mitigation to address water pollution due to highway runoff, are reauthorized with 40% more money.
The Congestion Mitigation and Air Quality Improvement Program continues with $9.1 billion authorized. A new Clean Fuels Program is authorized at $1.2 billion. The Congestion Pricing Pilot Program becomes the Value Pricing Pilot Program and the number of project States grows from 5 to 15, with funding of $8 million/year. A new $100 million National Wetlands Restoration Pilot Program to offset wetlands degradation caused by highway construction before 12/27/77, is authorized. A 5-year, $120 million program is authorized to research relationships between transportation, community preservation and the environment, and the role of the private sector.

Actual Use: The new authorities tend to build on experience under ISTEA.

Potential Use: Contingent upon regulations implementing changes made by the reauthorization, state transportation agencies will be able to undertake a variety of measures to combat air pollution, restore and preserve wetlands, and otherwise mitigate environmental impacts.

Advantages: Inclusion of support for environmental measures diminishes counterproductive tensions between transportation infrastructure development and environmental protection.

Limitations: If the legislation's potential is to be realized, transportation agencies must be willing to take advantage of the environmental authorities conveyed.

Reference for Further Information: U.S. Department of Transportation, The Federal Highway Administration, 400 7th Street, SW, Washington, DC 20590; Telephone: 202-366-5004, Internet: **www.dot.gov/**.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

3. TOOLS

FOR

ENHANCING CREDIT

3. TOOLS FOR ENHANCING CREDIT

INTRODUCTION

Description: Credit enhancement serves as an assurance to lenders or bondholders that credit is available, and that they will be repaid if the debtor government or private party should default or delay payment. By providing additional guarantees for bond and/or loan repayment, credit enhancement mechanisms may improve the ability of both the public and private sectors to acquire capital in the first instance, to acquire capital at lower costs including issuance, coverage and interest costs, to lower debt service reserve requirements, and to achieve other goals. Credit enhancement tools may be as straightforward as purchasing commercial bond insurance or posting a performance bond, or as complex as State Revolving Fund (SRF) collateral or cross-collateral bond leveraged financing, senior and subordinate debt arrangements, and over funded debt reserve funds.

Advantages: Local governments with poor credit ratings (below investment grade), or no credits ratings, may be able to gain access to capital markets and/or loan funds through credit enhancements, thus increasing the equity of access and allowing environmental projects to move forward. Complex, expensive environmental facilities may benefit from credit enhancement debt structuring, and "risky" environmental projects such as those involving hazardous waste may benefit from bond or liability (indemnity) insurance. SRF bond leveraging creates SRF-backed, and sometimes oversized, debt reserve funds to secure bonds and subsidize interest rates. Bond pools and bond banks result in lower interest costs for some individual recipients through diversification. Bond insurance may result in significantly lower carrying costs than otherwise. The credit enhancements presented here have been as important to the private sector, and in many instances are more widely used, compared to the public sector. Individual borrowers can help assure lenders as to future risks through environmental sand financial due diligence steps.

Limitations: Most credit enhancements involve additional costs that may outweigh the financial advantage from the lower interest rates, or other cost-savings, achieved through the mechanisms. Thus, use of credit enhancements must be evaluated on a case-by-case basis. There may be intense competition for federal and State credit enhancement programs, which in themselves may be administratively difficult to access and arrange. Bond or loan holders may be given a false sense of security if credit enhancements are applied to funding projects which are inherently unaffordable, difficult to structure, or risky. The more complex credit enhancement mechanisms involving bond leveraging and debt reserve fund management may be too difficult for some governments to undertake and entail high administrative/accounting costs.

LIST OF TOOLS FOR ENHANCING CREDIT
(In Alphabetical Order)

1. Association Pooling
2. Commerce: Small Business Administration -- Surety Bond Program
*3. Commercial Insurance and Guarantees
*4. Environmental Due Diligence
*5. Financial Due Diligence
6. Grant-Backed Credit Enhancements
7. HUD: Community Development Block Grants – Section 108 Loan Guarantees
*8. Letters of Credit/Lines of Credit
*9. Performance Bonds
*10. Senior and Subordinate Debt Structuring
*11. State Bond Banks
*12. State Guarantees and Insurance
*13. State Revolving Fund (SRF) Bond Leveraging
*14. SRF Common Bond Pools and Cross-Collateralization
*15. SRF Interest Rate Subsidies

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the Guidebook for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

ASSOCIATION POOLING

Description: Members of an association combine their resources in a common pool to improve the creditworthiness of participants, thus helping them to obtain financing for environmental capital improvements. For example, a nonprofit trade association representing a manufacturing sector creates a revolving fund that could: (1) provide lines of credit to participating members; (2) purchase insurance or letters of credit to back the borrowings of members; and (3) itself borrow on behalf of members, using the assets of the fund as collateral or reserve. In the latter case, the pool would be a true revolving fund. Besides contributions from participating members, the resources and capability of the pool might be enhanced via assistance from the Small Business Administration.

Actual Use: No examples are known of associations establishing pools to facilitate the financing of environmental improvements. Readers are encouraged to let us know of any new tools (see Appendix A). There are many examples of communities and/or State governments forming bond pools to enable all pool members to have access to affordable capital. Many cooperatives are formed, at least in part, to serve this same function.

Potential Use: The potential use of this tool is impossible to predict, but if pools could be made large enough, then it is conceivable that otherwise uncreditworthy borrowers could become bankable credits at reasonable costs. It would probably have the greatest application with industrial trade associations possessing a wide range of members in terms of their financial conditions.

Advantages: EPA's Common Sense Initiative has clearly demonstrated that there is a need to improve the access to capital for many small businesses in order to make it economic for them to invest in environment capital improvements. Existing public and private institutional arrangements are not meeting this need. Association pooling might be a means for a business sector to help itself without trying to solve the problem through public assistance programs.

Limitations: There is little incentive for already creditworthy association members to participate in the pool unless incentives are offered. For the pool to function effectively, it much reach a critical mass of creditworthiness that could prove difficult to achieve. It may prove difficult to assess and administer sanctions against individual pool members who default on their financing arrangements.

References for Further Information: Small Business Administration Programs can be found under *The Catalog of Federal Domestic Assistance* and at the *Catalog's* Internet site, under Independent Agencies at **http://aspe.os.dhhs.gov/cfda/ideptaa.htm**. Select "Small Business Administration".

DEPARTMENT OF COMMERCE
SMALL BUSINESS ADMINISTRATION (SBA) --
SURETY BOND PROGRAM

Description: A surety bond is a bond issued by one party, the surety, guaranteeing that he will perform certain acts promised by another or pay a stipulated sum, up to a set limit, in lieu of performance, should the principal fail to perform. Surety bonds include contractor bid, performance and payment bonds, maintenance bonds, supply bonds, financial guarantee bonds, and license and permit bonds, among others. For example, a performance bond is an agreement whereby an insurance company becomes liable for the performance of work or services provided by a contractor by an agreed-upon date. If the contractor does not do what was promised, the surety is financially responsible (see **Section 10.B., Surety Bonds** and **Section 3., Performance Bonds**). Most large property and casualty insurance companies have surety departments. Professional agents or brokers specializing in providing surety bonds. can provide information regarding specific surety companies.

Actual Use: By law, prime contractors to the federal government must post surety bonds on federal construction projects valued at $25,000 or more. Many state, county, city and private sector projects also require bonding. The Small Business Administration (SBA) can guarantee bid, performance, and payment bonds for contracts up to $1.25 million for small businesses that cannot obtain bonds via regular commercial channels. Contractors apply to SBA for a guarantee through a surety bonding agent, in which case the guarantee goes to the surety, or the contractor may use a "preferred surety" authorized by the SBA to issue, monitor and service guaranteed bonds without prior SBA approval.
Potential Use: The SBA guarantee can enable the participation of otherwise non-competitive small businesses in environmental facility or clean-up projects.

Advantages: The SBA program protects both the principal and the obligee at a lower cost because its guarantee protects the surety.

Limitations: Size standards for construction industry firms limit eligible general and heavy construction contractors to companies with annual revenues of no more than $17 million and special trade contractors to those with no more than $7 million annual revenues.
Reference for Further Information: Small Business Administration, 409 Third Street, SW, Washington, DC 20416; Telephone: 202-205-6485; Fax: 202-205-7064, Internet address: **www.sba.gov/financing/surety.html**. U.S. Department of the Treasury list of surety companies qualified to write bonds required by the federal government (Circular 570 - Surety Companies Acceptable on Federal Bonds). This list is published in the *Federal Register* on July 1 each year and is available from the Surety Bond Branch, Financial Management Service, U.S. Department of the Treasury, 3700 East-West Highway, Room 6F04, Hyattsville, MD 20782, Telephone: 202- 874-6850.

COMMERCIAL INSURANCE AND GUARANTEES
(Page 1 of 2)

Description: Private bond insurance is purchased at the time of bond issuance, and represents a legal, noncancellable commitment by a third party (here a bond insurance company) to make timely payments of principal and interest in the event that the debt issuer cannot. Bond insurance is usually paid at the time of issue as a percentage of the bond amount, and may be used for any bond including general obligation and revenue bonds. The role of municipal bond insurance in the tax-exempt market is threefold: to reduce interest costs to issuers, to provide a high level security to investors, and to furnish improved secondary market liquidity and price support. Four major insurers are active in the insurance of new-issue municipal bonds: the Municipal Bond Investors Assurance Corporation (MBIA); the American Municipal Bond Assurance Corporation (AMBAC); the Financial Guaranty Insurance Company (FGIC); and the Capital Guaranty Insurance Company. Bond insurance may also be used for private-activity bonds and by private companies and corporations.

Private or commercial loan or mortgage guarantees, such as by banks or individuals, may also be used by any private company or individual receiving a loan. Insurance companies may also offer special insurance for hazardous waste projects to cover future liability suits or losses resulting from Superfund joint and several liability statutes, although indemnification is never complete.

Actual Use: The use of private bond insurance by State and local governments for municipal bonds issued to finance environmental facilities varies greatly. In general, the purchase of such insurance by SRFs has been rare, since SRF debt is well regarded by the market. A number of SRFs have AAA ratings on their pooled bonds, with New York, New Jersey and Minnesota receiving AAA from three bond rating companies. Most other bond-leveraged SRFs receive the next highest rating. States more often use bond insurance for private activity tax-exempt bonds, particularly for environmentally "risky" solid waste-type facilities. Bond insurance is one of the few ways qualified exempt private activity bonds have of lowering their interest rate, since insurance expense does not count against the 2% issuance cost limitation and is treated as deductible interest expense by the federal tax code. In 1990, 25%, or $30.6 billion, of new municipal bond issues were insured. Commercial bond insurance also is available for municipal unit investment trusts, private portfolios, and bonds traded in the secondary market.

Potential Use: Bond insurance can be purchased for debt, public or private, covering any environmental media. In general, it may be especially valuable for solid and hazardous waste financings, including recycling and resource recovery facilities, and brownfields redevelopment, which may appear more environmentally risky than water and wastewater systems. In such cases, special insurance funds may help provide protection against future liability suits. Small public and private water systems could use bond insurance more widely to gain investment grade ratings.

COMMERCIAL INSURANCE AND GUARANTEES
(Page 2 of 2)

Advantages: In general, the use of commercial bond insurance will lower annual carrying costs, once premiums are paid, since they result in higher bond ratings which lead to lower annual interest rates. For example, in 1990, Standard and Poor's typically rated investment grade bonds insured by the above-mentioned four companies AAA, while Moody's rated bonds insured by all four as Aaa. Commercial bond insurance allows many small communities and companies to receive investment grade ratings and thus have access to the debt market which might otherwise be unavailable.

Limitations: While bond insurance provides significant additional security, investors should be aware that the issuers are still the first source to look to for payment of principal and interest on their bonds. For that reasons, and other technical and tax-related consideration, all insured bonds do not carry identical rates of return. Moreover, insurance costs will vary considerable with the strength of the borrower and size of the bond, as well as the perceived risk associated with the financing, and thus may not also result in cost-savings particularly for small issues. Of course, some bonds are not, or should not be, insurable at all.

Reference for Further Information: The Bond Market Association (BMA), *Fundamentals of Municipal Bonds*, Fourth Edition, New York, 1990; Council of Infrastructure Financing Authorities (CIFA), *State Revolving Funds Under Tax Reform,* Monograph No. 2, Washington, D.C., June 1989, and *Financing Alternatives for Small Water and Wastewater Utility Systems,* Monograph No. 3 by Michael Curley, Washington, D.C., January 1990.

ENVIRONMENTAL DUE DILIGENCE

Description: Environmental due diligence is an element of qualifying the collateral value of real property, and thereby qualifying credit risks. In addition, purchasers and lenders must document sufficient environmental due diligence to protect themselves from environmental cleanup liability. Without proper due diligence purchasers and lenders face strict liability for pre-acquisition contamination on property.

Although there are no specific standards for examinations in the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), it is common for environmental due diligence to involve five potential levels of environmental assessment. The first level is an environmental screening inspection, which is a check-list inspection to determine the presence or absence of visible environmental concerns. The second level is an environmental risk screening, which evaluates the environmental risks associated with conditions on the property and adjacent parcels. The third level is a phase I environmental site assessment/audit. The fourth level is a phase II environmental site assessment/audit. The fifth and last level is a phase III environmental site assessment/audit.

Actual Use: Due diligence including at least a phase I environmental site audit is a requirement for virtually all commercial and industrial real estate transactions financed by institutional lenders. The American Society for Testing and Materials has published standards for environmental assessments (see Standard Practice for E1527-97, *Environmental Site Assessments: Phase I Environmental Site Assessment Process*; E1528-96, *Environmental Site Assessments: Transaction Screen Process;* PS37-95, *Conducting Environmental Baseline Surveys*).

Potential Use: Competent due diligence can free a property from suspicion of contamination, thereby qualifying it for third-party insurance coverage and use as loan collateral.

Advantages: Proper environmental due diligence may enable a party to undertake an innocent landowner defense under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Limitations: The due diligence process itself can become relatively expensive and it may reveal conditions which require substantial expenditures.

Reference for Further Information: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, Telephone: 610-832-9585, Fax: 610-832-9555, Internet: **www.astm.org/.**

FINANCIAL DUE DILIGENCE

Description: Due diligence is a series of tests which must be passed for a financing deal to qualify for investment. In the venture capital arena there typically are five types of risk appraised pertaining to product development, manufacturing, marketing, management, and growth. To investors, the acceptable risks are marketing and management. Therefore, venture capital tends to flow to companies that demonstrate a completely operative product or service.

Due diligence begins with sending a business plan to the potential investor, who applies preset criteria to screen out unacceptable deals. As part of this process, investors should investigate the assumptions supporting a plan's projections. If the plan passes muster, further investigation and appraisal is done. The size of the identified market, proprietary nature of the product, and background of management are factors which may be looked at more carefully at this stage. The scope and rigor of due diligence grow if federal securities laws apply. Financial audits, legal due diligence, personal investigations, and business valuation appraisals can be parts of the process. In an initial public offering, at least one due diligence meeting must be run by the underwriter to allow brokers to question the issuer's representatives. Further meetings may be held for analysts and institutional investors to question the issuer's top managers. They also should examine the reputations of potential investors.

Actual Use: Financial due diligence is commonly used by institutional investors and lenders considering commitment of significant funds to a venture. For example, a subcommittee of the Board of Directors of the Alternative Agricultural Research and Commercialization Corporation conducts due diligence visits prior to final consideration of an investment proposal (see **Section 10.A., Agriculture: Alternative Research and Commercialization Corporation**).

Potential Use: While financial due diligence is essential to protect lenders and investors, it also can bolster confidence in and otherwise assist companies that are examined. Firms seeking financing for producing or marketing environmentally friendly goods must anticipate a due diligence investigation.

Advantages: Due diligence may identify weaknesses that can be corrected, thereby making a loan or investment financially feasible. Careful due diligence can protect brokers against successful lawsuits by investors if the investment goes bad.

Limitations: Due diligence is not a guarantee of a successful investment. It may be difficult to uncover some important factors and impossible to offset market uncertainties.

Reference for Further Information: Lawrence, Gary M., *Due Diligence in Business Transactions*, Law Journal Seminars-Press, 1994; *Due Diligence for the Financial Professional*, Agiato & Nesbit (Eds.), Everest Publishing, 7534 East 2nd Street, Suite 102, Scottsdale, AZ 85251, Telephone: 602-994-5024, Fax: 602-941-5561.

GRANT-BACKED CREDIT ENHANCEMENTS

Description: Grant-backed credit enhancements (GBCEs) are guarantees that assure lenders and bondholders that a percentage of anticipated grant funds will be used to fund bond reserve funds. As a result of GBCEs, investors can achieve higher bond ratings. GBCES may use authorized trust funds, formula and block grants administered by the Federal Highway Administration (FHA), the Department of Housing and Urban Development, the Department of Commerce, and other Federal agencies. GBCES are different from grant-anticipation notes (GANs) used for short-term, or bridge construction financing

Actual Use: Grant-backed credit enhancements have not been widely used, although they have been proposed to build highway projects using State-issued debt back by GBCES from the State's share of FHA funding. Since the EPA's wastewater construction grant program has been replaced by the State Revolving Loan Fund (SRF) program, this credit enhancement technique is less applicable.

Potential Use: There are several ways in which GBCEs could be used in the future. Bond-leveraged SRFs could use a pledge of future federal wastewater and drinking water capitalization grants to build up or over fund, or overcome temporary shortages in, debt reserve funds, which might improve bond ratings and allow for great interest rate subsidy. Second, when grants as opposed to loans are available to communities, for example, new SRF drinking water grants for small communities, they could use GBCEs to back the local debt issued. Third, the concept in theory could be extended to loans, i.e., communities could use a Loan-Backed Credit Enhancement based on anticipated SRF loans. This could not be used by States for federal loans, however, since the implicit double guarantee might affect the tax status of subsequent bonds.

Advantages: Grant-backed credit enhancements might reduce the cost of borrowing by communities, and allow projects to move forward in a timely manner. They require no initial investment by the communities.

Limitations: Since grant as opposed to loan funds for environmental facilities are less prevalent, and SRF loans have been available on a timely basis, there may be a declining need for this kind of credit enhancement for EPA-related programs. In addition, grant funds and policies may fluctuate from year to year, which increases uncertainty on the part of all parties.

Reference for Further Information: U.S. EPA Publication: *Alternative Financing Mechanisms for Environmental Programs*, August 1992. U.S. EPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R, Fax: 202-565-2587. Contact: George Ames at **ames.george@epa.gov**.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
COMMUNITY DEVELOPMENT BLOCK GRANTS --
SECTION 108 LOAN GUARANTEES

Description: Section 108 is the loan guarantee part of the Community Development Block Grant (CDGB) program. Section 108 helps communities to secure affordable financing for economic development, housing rehabilitation, public facilities, and large physical development projects. CDGB rules and requirements govern eligibility with qualified applicants being those eligible under the CDGB Entitlement Grants, State Grants, and Small Cities programs (see appropriate pages in **Section 2.C.: Grants**). Projects must benefit low- and moderate-income persons, or help eliminate or prevent slums and blight, and meet urgent community needs.
The maximum repayment time for Section 108 loans is twenty years. HUD helps to structure principal amortizations to match the needs of projects and borrowers. Section 108 obligations are financed by underwritten public offerings with interest rates pegged to Treasury obligations of similar maturity plus a small additional fee. The actual loans are secured by the community's current and future CDBG grants and project collateral.

Actual Use: The 108 program has operated since 1974 making more than 930 commitments for economic development and housing purposes totaling in excess of $4.4 billion. In October 1996, HUD approved a $50 million Section 108 loan guarantee to the City of Chicago supporting the Chicago Brownfields Redevelopment Program (funds to be spent over three years).

Potential Use: This program could help finance considerably more brownfields redevelopment projects and public environmental facilities involving drinking water, wastewater, solid waste.

Advantages: A CDGB Section 108 loan guarantee allows public entity applicants to obtain the best possible financing terms. In general, applicants can request up to five times their latest approved CDBG amount minus outstanding Section 108 commitments and/or principal balances.

Limitations: While Section 108 loan guarantees may help access money at good interest rates, they provide no actual funds to the community. Furthermore, the use of 108 loan authority requires that an applicant pledge its current or future CDGB funds as security for the loan, as well as another form of security such as the assets finance by the loan.

Reference for Further Information: U.S. Department of Housing and Urban Development, 451 7th Street, SW, Washington, DC 20410. Telephone: 202-708-1112. Additional information on the 108 program can be accessed at HUD's World Wide Web site at **http://www.hud.gov**.

LETTERS OF CREDIT/ LINES OF CREDIT

Description: Commercial letters of credit (LOCs), usually issued by commercial banks, are security documents that enhance the basic security behind a bond. With "direct pay" LOCs, the bondholder can request the bank to make payment directly rather than via the issuer. Letters of credit specify that funds will be used only for bond or loan repayment. In contrast, lines of credit, also available from commercial banks, assure potential lenders that borrowers will have access to cash if necessary, although lenders have no guarantee that borrowers will not use this line of credit for other purposes In this case, borrowers may be either public or private sector institutions or individuals.

Actual Use: The use of letters and lines of credit is widespread and commonly accepted, particularly for the private sector, which helps to assure all lenders of the security of the bond/ loan. The federal government also uses the letter of credit mechanism as a way for States to periodically draw down on already appropriated federal grants (it was used initially for CWSRF capitalization grants). In this case, the LOC mechanism served federal budget deficit control goals (i.e., outlay controls) and allowed SRFs to make loan commitments without having the cash in hand.

Potential Use: Communities or companies ineligible for other types of credit enhancements may be able to use commercial letters and lines of credit. These tools may be particularly important for privatizing solid waste facilities and brownfields redevelopment. Bank letters of credit may be used in many States to assure DWSRFs that loans to smaller borrowers, with weak credit, will be repaid.

Advantages: Arranging for commercial credit enhancement may be much faster than federal or State mechanisms. Letters and lines of credit reduce borrowing costs and, sometimes at minimal expense, permit access to the debt market for projects considered somewhat risky either from the financial or environmental standpoint. Letters and lines of credit may be used to reduce debt service reserve requirements, or bond "coverage". Coverage, a term usually used in connection with revenue bonds, represents the margin of safety for payment of debt service, as reflected by the number of times (e.g., "120 percent coverage") by which annual revenues exceed annual debt service.

Limitations: Unlike commercial bond insurance which typically is readily available at a predictable (although variable) cost, State and local governments as well as the private sector may have difficulty finding commercial letters and lines of credit at reasonable rates, since it depends on the financial condition of commercial lenders, their willingness to assume risk, their client relationship with the borrower, and many economic factors. Individual lines of credit are negotiated by borrowers and lenders on a case-by-case basis, and the fees charged by the lender may vary considerably. This reduces equity of access as well as the revenue cost/saving ratio.

Reference for Further Information: The Bond Market Association (BMA), *Fundamentals of Municipal Bonds*, Fourth Edition, New York, 1990.

PERFORMANCE BONDS

Description: Performance bonds are issued by commercial institutions on behalf of contractors, such as construction companies, to protect project owners from the consequences the contractors' failure to complete contracts in accord with plans and specifications. These bonds indicate that a financially responsible party, such as a commercial bank or insurance company and termed the "surety" in this case, stands behind the contractor. By furnishing these bonds (often required by the owners of the land to be developed or facility to be built), contractors may obtain credit (i.e., construction loans), at lower rates. These bonds limit surety liabilities to set amounts specified in bond agreements and contracts, and does not cover third parties. "Payment bonds" may accompany performance bonds and cover payment of contractor obligations to third parties, for example, for labor and materials.
Actual Use: Use of performance bonds by the private sector is a widely used and commonly excepted practice. The public sector might furnish a performance bond only if it were actually undertaking construction of an environmental facility itself. More typically, local government is the entity, or owner of a facility to be constructed, requesting the use of performance bonds by the private sector. On occasion, States, including SRFs, have undertaken construction on behalf of State agencies and employed this mechanism as a means of assuring the performance of contractors.

Potential Use: Performance bonds might be particularly helpful in the case of especially environmentally risky or complex projects, such as hazardous waste and brownfields projects.

Advantages: While performance bonds have value as a credit enhancement device for borrowers, they may have even more value in enabling all parties to feel comfortable with a project and helping projects which might otherwise be viewed as to risky or complex to move forward on a timely basis. Also, they help ensure equity of access to the construction market for a wider range of contractors, especially for small businesses, which in itself might assist in lowering contract costs. Performance bond agreements are quite straightforward and simple to arrange, although the cost and exact terms of the bonds vary depending upon whether the contract is public or private, the number of sureties involved, or contractor's status, e.g., whether the contractor is a prime contractor or a subcontractor.

Limitations: A performance bond does not provide absolute assurance that contract work will be completed as specified for the contract price, but it does permit the surety, upon contractor default, to either pay the bond penalty, or finance or hire a new contractor. Validity of the bonds can be impaired by the project owner's actions, such as when an owner fundamentally alters the scope of contract performance or violates contract terms. Historically, "completion bonds" were used to guarantee the performance of owners and contractors but recently this has been viewed as too risky.
Reference for Further Information: The American Institute of Architects, *Performance and Payment Bonds*, Document A312, Washington, D.C., March 1989.

SENIOR AND SUBORDINATE DEBT STRUCTURING

Description: Senior and subordinate debt structuring provides for two categories of lenders, or loans, for a individual project. Those considered "senior" are those that would be repaid first should default or payment delays occur. Those considered "subordinate" are those that would repaid only after the senior debt, or lenders, are paid. Thus, senior debt typically carries lower interest rates of return, because it is "safer", than subordinate debt. In this sense, this kind of debt structuring is a credit enhancement for the senior debt or lender.

Debt structuring can be important to State Revolving Fund (SRF) bond leveraged lending, particularly in loans to large entities issuing their own debt as a pledge of repayment. For example, senior and subordinate debt structuring has been pursued in New York and Massachusetts, where the SRFs issued large revenue bonds for the benefit of a single user, i.e., the New York City Municipal Water Finance Authority and the Massachusetts Water Resources Authority. In Massachusetts, payment by the Authority to the SRF was subordinate to the Authority's obligation to meet debt service on its own bonds. In New York, the SRF loan repayment was a parity obligation to the city's outstanding revenue bonds for several years. In 1994, a senior/subordinate debt arrangement was developed whereby the local debt was subordinate to the debt to the SRF, which resulted in the New York City Water Resources Authority being able to lower its debt reserve requirements and realize the SRF's interest rate subsidy immediately.

Actual Use: The private sector uses senior/subordinate debt structures frequently. The public sector has used this structure for SRF bond leveraged financing on rare occasions..

Potential Use: Public sector use of senior/subordinate debt structuring could be expanded. However, similar to other market tools such as the use of derivative products, structuring is complicated and should be evaluated carefully.

Advantages: The advantages of this kind of debt structuring for the private sector are that it allows a greater number of investors in an individual project, with the credit enhancement pertaining to the senior investors or lenders. For the public sector, particularly SRF bond leveraged debt structuring, cost savings can be significant and accrue to both the and local parties.

Limitations: Bond leveraged transactions involving senior and subordinate debt are complicated, and require drafting of bond resolution and indenture documents which permit debt restructuring.

Reference for Further Information: Merrill Lynch and Co., *Guide to State Revolving Fund Revenue Bonds*, Municipal Credit Research, Christopher Mauro, New York, 1995.

STATE BOND BANKS

Description: State bond banks are public authorities created to help communities, especially smaller ones without financial expertise or credit history, to access the lower loan rates and other efficiencies of the tax-exempt bond market. By pooling smaller issues and giving State credit backing, they cut the cost of borrowing to communities, with significant savings in debt service over the term of borrowing. State credit enhancement may be provided via moral obligation pledges, which guarantee either the local bonds purchased by the bond bank or bonds issued by the bank, or other guarantees such as tax or State aid intercept devices. Bonds banks can be State-wide, or serve special localities.

Actual Use: State bond banks have been active in environmental financing over 25 years, beginning with the Vermont Municipal Bond Bank, and have been replicated in the majority of States with ap/plication to a range of public facilities including sewage and water systems, solid waste, schools and hospitals and other facilities. The State Revolving Funds (SRFs) are a specialized form of bond bank, and several States such as Kentucky, Maine, Michigan and Vermont have designated their previously created bonds banks as their SRF bond issuer.

Potential Use: Bond banks could be used to pool the debt of communities to construct any kind of environmental facility, not simply traditional water and sewer facilities. A private activity, tax-exempt bond pool also could be used for private debt, as was undertaken before the DWSRF in New York for several small, private water suppliers.

Advantages: Besides providing access to the tax-exempt credit market for smaller localities or companies, bond banks provide three main economic advantages to localities. First are economies of scale in bond issuance, resulting from the elimination of duplication of fixed issuance costs and negotiated underwriting, administrative cost savings pertaining to tasks such as arbitrage rebate accounting, and the use of specialized techniques to further reduce interest costs such as variable rates or zero coupon bonds. Second, a pool of credit is generally perceived as more credit worthy than an individual credit because default risk is diversified. And third, a wide issuer typically improves credit quality via enhancement devices such as moral obligation pledges and revenue intercept mechanisms.

Limitations: A great deal of work must be undertaken by State program managers to bring and retain in a bond pool small communities that may have limited management and technical capacity. If one borrower drops out, the success of the pool may be put in jeopardy, since relative to the size of the bond pools issuance and administrative costs already are quite high. Standard and Poor's has been somewhat rigid in providing improved credit ratings based on a diversified pool of borrowers. SRF-related bond pools are limited to a 20-year loan duration limit

Reference for Further Information: Council of Infrastructure Financing Authorities (CIFA), *State Municipal Bond Banks*, CIFA Monograph No. 5 by Daniel Irvin, Paine Webber, New York, NY, March 1993.

STATE GUARANTEES AND INSURANCE

Description: Specific forms of State credit assistance to localities and private borrowers include the State loan guarantee provisions federally authorized for CW and DW SRFs, special State bond insurance programs, and dedicated State revenue guarantees as collateral for debt repayment. State revenue guarantees can take the form of special appropriations to replenish reserve funds, dedicated sources of taxes or other revenue, and State aid intercepts. More general guarantees might include State general or moral obligation pledges for State bonds.

Actual Use: In general, States have not been particularly active in offering specific guarantees and insurance to localities. To date, no State has used the CWSRF loan guarantee provision, primarily because loan funds have been available and credit issues have not been a consideration. There have been few payment delays on CWSRF loans nationwide. Several States, including Maryland and Maine, have special bond insurance programs, but rarely have used them. Some States have loan or bond guarantee programs arising from non-environmental agencies, such as economic development agencies, but use has been limited. Three States, Maine, Minnesota (although not at present) and Wisconsin, have provided moral obligation pledges on SRF bonds as additional bondholder security, and five States including Massachusetts, Michigan, Maryland, New York and Wisconsin have a State aid intercept mechanism although this has not been used for SRF bonds.

Potential Use: The use of State credit assistance potentially may be much greater in the future particularly as SRFs expand into private drinking water financing, and hazardous waste and brownfields. A number of SRFs have indicated that they may use DWSRF loan guarantee provisions more readily for private sector borrowers since this removes the SRF from having to closely scrutinize private client credit conditions, or be involved in enforcement or foreclosure proceedings should defaults occur. DWSRF loan guarantees would be made to commercial banks, which would actually make the loans. States could use pledges of environmental fees, and taxes, as collateral for loans or loan guarantees.

Advantages: State loan or bond guarantees cost communities little to nothing, and thus are one of the cheapest avenues to follow. Additional State guarantees can considerably reduce the costs of borrowing for loan or bond pool recipients, and are the most leveraged of all financing techniques.

Limitations: The debt market may not recognize any form of credit assistance if the underlying recipient or project is weak, and found unacceptable from an affordability or technological standpoint.

Reference for Further Information: U.S. EPA Environmental Financial Advisory Board (EFAB) report, *Funding Privately-Owned Water Providers Through the SDWA SRF*, July, 1998; Council of Infrastructure Financing Authorities (CIFA), *State Municipal Bond Banks*, Monograph No. 5, by Daniel Irvin, Paine Webber, Washington, D.C., March 1993.

STATE REVOLVING FUND (SRF)
BOND LEVERAGING
(Page 1 of 2)

Description: Leveraging, in the State Revolving Fund (SRF) context, means that States have the discretion to use the federal capitalization grants for wastewater and drinking water, as well as their required 20% matching share and other assets such a principal and interest repayments, as "collateral" to borrow in the tax-exempt municipal bond market for purposes of increasing the pool of available funds for project lending and for interest rate subsidization. The leveraging option allows States to use such funds as a security for the payment of principal and interest on their revenue bonds. SRFs may issue individual revenue bonds for large borrowers or pooled bonds for groups of borrowers. Bond pools with a diversity of participants improve bond ratings for the "weaker" borrowers. A few SRFs are issuing common bond pooled debt for both clean water and drinking water projects. SRF bond leveraged loans are contrasted with SRF direct loans to localities, although many bond leveraged SRFs also make direct loans, especially to smaller communities.

Actual Use: By the end of 1997, 25 States had used their Clean Water SRFs (CWSRFs) to leverage a total of $8.8 billion in additional dollars loaned since the initiation of the SRF program. These additional dollars represent 36% of total funds in the lending pool.

There are two basic forms of SRF bond leveraging, with many variations: the "blended rate loan leveraging" or "cash flow" approach and the "reserve fund leveraging" structure. The first is the most simple and direct, using the proceeds from original SRF direct loans, funded by federal capitalization grants and the State match, to help create a debt service reserve fund for simultaneous or subsequent SRF revenue bond sales which finance additional loans. Here, SRFs can make below market rate loans to localities from blend of both the SRF funds and bond proceeds in the debt service reserve fund. The blended rate loan leveraging approach has been adopted by CWSRFs in Arkansas, Maryland, Maine, North Dakota, Oklahoma, Ohio, Texas, South Dakota and other States.

The second approach, the reserve fund leveraging structure, has generated the most sizeable and high-profile SRF municipal bonds issues to date. Here, federal capitalization grants and the State match are deposited into a reserve fund, typically oversized, to serve as security for SRF revenue bonds. The debt reserve fund serves as the source of interest rate subsidies for localities, with the amount of subsidy depending on the size of the reserve fund. CWSRFs using this approach include Alabama, Arizona, Colorado, Connecticut, Massachusetts, Michigan, Minnesota, Missouri, New York and Rhode Island. New York has pursued the most aggressive leveraging -- 2 to 3 times federal capitalization grants -- by creating "extraordinary" reserve funds resulting in interest rate subsidies from 33-50%. Other States have "overmatched" federal funds with their own funds.

STATE REVOLVING FUND (SRF)
BOND LEVERAGING
(Page 2 of 2)

Potential Use: Many Drinking Water SRFs (DWSRFs) are expected to bond leverage. DWSRF bond leveraging and common DW/CW bond pools, discussed later, will allow even greater dollar leveraging. The SRF leveraging approach is being adopted in some States for highway financing, as authorized under the 1990 ISTEA legislation for the Federal Highway Trust Fund, and can be used for solid waste funding. Localities and sub-State districts also could create leveraged revolving loan funds, which may be SRF-subsidized.

Advantages: The credit enhancement advantages of the SRF bond leveraging approach are twofold. First, localities can take advantage of the interest rate subsidy offered by the SRF. Second, SRF pooled revenue bonds loans typically are rated in the highest two categories because of the strong characteristics of the SRF program, low default incidence, and strong collateral. Not only is a large number of pool participants (e.g., over 20) considered advantageous by the rating agencies and may lower collateral requirements, but a diversification of size, low concentration (i.e., since borrowers not responsible for more than 10% of the portfolio) and even credit ratings can provide advantageous to both the borrowers and lenders. By providing large amounts of additional capital in the short term, bond leveraged wastewater SRFs have been able to expand their loan portfolios into eligible non-point source related funding such as agricultural and urban runoff control, sludge management, septic system rehabilitation, estuary protection, and landfill projects, and save local interest cost payment through refinancing and advance refunding.

Limitations: Successful SRF bond leveraging relies on a number of factors, including the immediate demand for SRF loans by localities. Bond leveraging is much more complicated than a direct loan approach, and involves sophisticated, expensive and time-consuming activities, requiring expert account management, legal, tax, and underwriting skills, and market acumen. It also triggers arbitrage rebate requirements and advanced refunding demands. Thus, it may not be suitable for all SRFs. Some cities with high general obligation bonds ratings and the need to offer bonds for longer than 20 years, e.g., for water and sewer pipes, may prefer to finance facilities on their own.

Reference for Further Information: Council of Infrastructure Financing Authorities (CIFA), *Leveraged SRF Programs: A Comparative Review*, Monograph No. 6 by Paul Ladd, Kidder Peabody, Washington, D.C., August 1994; CIFA and U.S. EPA Environmental Financial Advisory Board (EFAB), *State Revolving Fund: A Decade of Successful SRF Performance, 1987-1997*, January, 1998, Washington, D.C.; Merrill Lynch & Co., *Guide to State Revolving Fund Revenue Bonds*, New York, NY, 1995; U.S. EPA Office of Water Fact Sheet, *The Clean Water State Revolving Fund*, Publication 832-F-96-003 (call National Service Center for Environmental Publications at 513-489-8190 or 1-800-490-9198, or access on the World Wide Web at **http://www.epa.gov/ncepihom/**.

SRF COMMON BOND POOLS AND CROSS-COLLATERALIZATION

Description: With the advent of the Drinking Water SRF (DWSRF), bond-leveraged SRFs may issue common pooled debt (i.e., bond pools combining recipients of both drinking water and clean water loans) to increase the size and pace of bond issuance, reduce costs, maximize management options, and increase the size and diversity of bond pools to improve bond ratings. Common SRF bond pools are jointly managed, but money is accounted for separately.

Cross-collaterization, as authorized by the DRSFW legislation, is one approach to common pools, and refers to devices by which security is provided to common pool holders in the unlikely event of inadequate debt reserve funds to cover either DW or CW loan defaults. It does not mean debt reserve fund dollars or loan repayments will be transferred from the DWSRF to the CWSRF or, vice versa.

Actual Use: Since 1997, at least one State, New York, has issued several common bond pools under a Master Indenture, and cross-collateralized using a common debt reserve fund, by assuring that underlying CW and DW loans are proportional to the bonds issued and creating a mechanism whereby deficiency in DW funds (subsequent to a hypothetical DW loan default) can be made up in the form of a new bond issue from CW SRF monies or vice-versa. At least two States, Colorado and Arizona, have issued common DW/CW bond pools but not cross-collateralized the debt reserve funds.

Potential Use: As States clarify their own legislation to permit cross-collateralization, common bond pools may become a more prevalent SRF practice , particularly in States where the DWSRF and CWSRF are co-located. Since cross-collateralization has been controversial and subject to varying interpretations by USEPA, it will take time for States to feel comfortable with this approach.

Advantages: Common bond pools can reduce SRF bond issuance, management and administration costs, and increase the size and pace of loans. Joint pools and debt reserve funds also increase the diversity and size of SRF bond pools, and reduce the percentage of the portfolio of any one borrower, all of which are key determinants the private rating agencies use in rating or "grading" bonds. The new DWSRF also can benefit from the experience gained by the CWSRF over the past ten years.

Limitations: Common bond pools may prove difficult if the DW and CW SRFs are not located in the same State authority. Some States have no authority for either joint bond pools or cross-collateralization. DW and CW monies must be separately accounted for (complex), and must meet USEPA technical definitions of proportionality and cross-collateralization, which have been subject to varying interpretation. SRFs should check with their USEPA regional office before proceeding. Finally, including private drinking water loan recipients in a bond pool raises complex tax issues.

Reference for Further Information: U.S. EPA's Environmental Financial Advisory Board (EFAB) and Office of Water have a number of documents on cross-collateralization, which can be accessed on U.S. EPA's Web site at **http://www.epa.gov/efinpage/efabcoll.htm.**

SRF INTEREST RATE SUBSIDIES

Description: The most direct form of credit enhancement is an interest rate subsidy of loans to public and private entities, such as provided under the State Revolving Fund (SRF) loan programs for wastewater and for drinking water facilities. Under federal statutes, SRFs are authorized to make loans at or below market rates of interest. All States have chosen to subsidize CWSRF interest rates, providing zero interest loans in some cases. Interest rate subsidies are a credit enhancement for localities increasing the likelihood that they will receive loans in the first place. They can be seen as a credit enhancement for bond leveraged SRFs since this increases the likelihood of bond repayment.
Actual Use: In 1997, the weighted average of SRF interest rates was 2.90%, ranging from zero interest rates in Utah and Vermont to 4.60% in Texas. Most SRFs offer rates between 2-4%, while the 20-year revenue bond average was 5.78%. Some States offer a fixed, or relatively fixed, rate, while others use a methodology independent of market conditions. Still others base the percent of subsidy on the reality of market conditions, and SRF loan demand. Interest rate subsidies are fixed by several State legislatures including in New York and Indiana. California allows local government to provide the State match portion of their project in return for a zero interest loan. Massachusetts has legislation pending to convert all SRF loans to 50% grant equivalency, with the net effect of reducing loans to a 0% net interest rate. 22 SRFs make a distinction in their programs for loans to small, disadvantaged communities and have developed interest rate criteria, i.e., using medium household income and local debt factors. States also subsidize interest rates for planning, design, and initial construction. New York offers interest-free short-term loans to communities of any size.
Potential Use: Drinking Water State Revolving Funds (DWSRFs) probably will offer similar interest rate subsidies to communities, and the private sector, although the possibility of grants (i.e., principal subsidies) to smaller communities may reduce the demand for zero interest loans somewhat.
Advantages: Interest rate subsidies reduce the costs of environmental infrastructure for communities and the private sector. They make it possible for communities to access affordable credit for which they might otherwise not qualify. DWSRF loans to private sector firms avoid some tax issues.
Limitations: Very low to zero interest rates will not permit SRFs to operate into perpetuity without fund replenishment from other State assets or the federal government. Hence, interest rate subsidies must be evaluated frequently by the SRFs. Interest rate subsidies do not always make the SRF competitive with local tax-exempt bond financing, since SRFs are limited to 20-year loan terms for wastewater and cities may have GO bond ratings stronger than SRF revenue bonds.
Reference for Further Information: Council of Infrastructure Financing Authorities (CIFA) and U.S. EPA Environmental Financial Advisory Board (EFAB), *State Revolving Fund: A Decade of Successful SRF Performance, 1987-1997, Washington, D.C., January, 1998.*

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR CREDIT ENHANCEMENT MECHANISMS

Criteria/ Credit Enhancement	**Actual Use**	**Revenue Size**	**Revenue Cost/ Saving**	**Admini-strative Ease**	**Equity**	**Environ-mental Impact**
Association Pooling	N. A.	N. A.	Mod.	Mod.	High	Mod.
Commerce: SBA Surety Bond Program	Low	Low	High	Mod.	High	Mod.
***Commercial Insurance & Guarantees**	High	High	Mod.	High	High	High
***Environmental Due Diligence**	High	Mod.	Low-Mod.	Low	Mod.	High
***Financial Due Diligence**	High	High	Mod.	Mod.	Mod.	High
Grant-Backed Credit Enhancements	Low	Low	Mod.	Mod.	Mod.	Low
HUD: CDBG - Section 108 Loan Guarantees	Low	Low	Mod.	Low	Mod.	Mod.
***Letters/Lines of Credit**	High	High	Mod.	Mod.	Mod.	High
***Performance Bonds**	High	High	Mod.	High	High	High
***Senior/Subordinate Debt Structuring**	High	High	Mod.	Mod.	Mod.	High

COMPARISON MATRIX continued

Criteria/ Credit Enhancement	Actual Use	Revenue Size	Revenue Cost/ Saving	Administrative Ease	Equity	Environmental Impact
***State Bond Banks**	High	Low	Mod.	Mod.	High	High
***State Guarantees & Insurance**	Low	Mod.	High	Mod.	High	High
***SRF Bond Leveraging**	High	High	High	Mod.	High	High
***SRF Common Bond Pools & Cross-Collateralization**	Low	High	High	Low-Mod.	High	High
***SRF Interest Rate Subsidies**	High	High	High	High	High	High

High - Indicates high use (over 25 States, most localities and private sector); criterion scores well; leveraging potential is over $1 billion annually nationwide

Mod.- Indicates moderate use (10-25 States, many localities and private sector); criterion scores in medium range; moderate leveraging potential

Low - Indicates low or rare use by States, localities and the private sector; criterion scores very low; low leveraging potential

* Star indicates best rated mechanisms

4. TOOLS FOR BUILDING PUBLIC-PRIVATE PARTNERSHIPS

4. TOOLS FOR BUILDING PUBLIC-PRIVATE PARTNERSHIPS

INTRODUCTION

Community leaders across the nation face the prospect of building, upgrading or renovating facilities to meet important environmental needs. They are feeling the squeeze of growing environmental expectations and costs coupled with increasing constraints on funding for all types of infrastructure and services. As the pressure to hold rate increases down for facility users grows, local leaders must find new ways to hold down costs and build public support for necessary expenditures. Public-private partnerships offer local governments one possible solution to this growing challenge.

This section evaluates the use of public-private partnerships (P3s). The P3s discussed here are contractual relationships between a public authority (usually a local government) and a private company that commits both parties to providing an environmental or other service, and for which the private sector seeks a profit. They may involve a variety of activities ranging from designing a facility such as a wastewater treatment plant to its financing, construction, operations, maintenance, management, and/or ownership. While each partnership is unique, most fall into one of five general categories: contract services; turnkey; developer financing; privatization; and merchant facility. However, there are important sub-types of partnerships within each of these major categories.

Other types of P3s involving the voluntary and not-for-profit collaboration of many individuals and the nonprofit sector, especially involving areas such as parks and conservation, are not covered in this section. They are presented in sections throughout the guidebook, but perhaps most prominently in **Section 8. : Tools for Financing Community-Based Environmental Protection** and in **Section 9.: Tools for Financing Brownfields Redevelopment**.

In Part A of this section , a number of important types of contractual public-private partnerships are presented and evaluated. Each includes a look at some of their advantages and limitations. Depending on the individual arrangement, a public-private partnership may allow communities to capture some of the following important private sector efficiencies:

- private financing can reduce the burden on public debt capacity;
- private operation, maintenance, and manage can generate efficiency savings;
- private sector procurement and construction methods can provide significant savings;
- the private sector can provide technology and expertise otherwise unavailable to the public sector, or a higher level of quality of services;
- private sector operations can shorten implementation time; and
- private sector involvement can reduce public liabilities through risk-sharing.

In Part B, abstracts of recent case studies developed by USEPA's Environmental Financial Advisory Board are profiled. These case studies are cutting edge examples of how communities have implemented successful public-private partnerships and internal optimization models. The abstracts both supplement and complement the partnership arrangements presented in part A of this section. They provide concrete examples of how successful partnerships and other models can be implemented by communities to provide needed environmental services and result in a "win-win" situation for both public and private parties.

4.A. PUBLIC-PRIVATE PARTNERSHIP ARRANGEMENTS

4.A. PUBLIC-PRIVATE PARTNERSHIP ARRANGEMENTS

Description: A contractual public-private partnership (P3), commits the public sector (usually a local government) and a private sector company to providing a facility-based environmental service, which is undertaken by the private sector for business (profit-making) purposes. The private party can be involved in a variety of ways from designing the public-purpose facility to its financing, construction, operations, maintenance, management, and/or ownership. Although each public-private partnership is unique, most fall into one of five general categories: contract services; turnkey; developer financing; privatization; and merchant facility. There are different responsibilities and benefits associated with each type.

To encourage and facilitate private investment and involvement in local infrastructure, including federally grant funded facilities, Executive Order No. 12803 was issued on May 4, 1992 directing executive agencies to make needed policy and regulatory changes. The order is intended to:

- assist local privatization initiatives,
- remove federal regulatory impediments to private sector involvement,
- relax federal repayment requirements, thus increasing State and local governments' proceeds from privatization arrangements, and
- protect the public interest by ensuring that privatized assets continue to be used for original purposes and that user charges remain consistent with current federal conditions.

Advantages: Depending on the nature of the specific arrangement, a public-private partnership may be able to capitalize on a number of private sector resources. If private financing is used, the burden on public debt capacity can be reduced. If private operations, maintenance, and/or management is used, efficiency savings are generally realized. Private sector procurement and construction methods typically provide significant savings as well. Due to access to sophisticated technologies and specialized expertise, the private sector can sometimes provide services otherwise unavailable to the public sector, or services at a higher level of quality. Private ownership can transfer part or all of the responsibility for financial risk and environmental compliance from the public to the private company (risk-sharing). Finally, private sector operations can frequently have a shorter implementation time.

Limitations: A major concern of governments in public-private partnerships is loss of control. When the public party is not involved in day-to-day operations, it may believe it does not have the same control over quality, including compliance with environmental standards and permits. Public employees and unions may oppose the public-private partnership due to fears about the loss of jobs. Local governments may not always have the legal authority to enter into contracts with private

parties. Tax-exempt and/or other low-cost financing may not be available from federal or State governments for partnership arrangements, and in general, changes in the tax code directly impact private sector profit-making opportunities. At times, for example private landfills, the public and private sectors have been in direct competition, and disputes have occurred.

Summary: The impetus for local communities to undertake a contractual P3 arrangement for environmental services differs for each environmental media, depending on the history of public funding and facility ownership, the tax code, and other factors. Hitherto, most attention has focused on wastewater treatment facilities, compared to drinking water or solid waste, because wastewater has been dominated by federally-funded, and now State Revolving Fund-financed facilities, which by law provide monies only for publically owned systems. Since 98 percent of all wastewater infrastructure is currently publically owned, mechanisms to encourage private sector involvement have been an important topic. Examples of these mechanisms include tax code issues which affect private sector profits, lease arrangement that avoid some funding restrictions, the disposition and use of previously federally-funded (i.e., by construction grants) projects, and private operations and maintenance contracts. In contrast, well over fifty percent of all drinking water and solid waste systems/facilities are privately-owned. Thus, privatization in the drinking water and solid waste areas is a well-established and widely accepted commercial practice, and offers a somewhat different set of topics for discussion. For example, equal treatment for both the public and private sectors is an issue, as exemplified by the ability of the Drinking Water State Revolving Fund to fund both the public and private sectors. Meanwhile, limiting competition has been an important solid waste issue with regards to landfills.

LIST OF PUBLIC-PRIVATE PARTNERSHIP ARRANGEMENTS
(In Alphabetical Order)

1. Asset Sales (Under Executive Order 12803)
*2. Build/Operate/Transfer or Build/Transfer/Operate (New Facility Construction, Operation, and/or Ownership)
*3. Contract Services: Operations and Maintenance (Private Services Contract)
*4. Contract Services: Operations, Maintenance, and Management (Private Services Contract)
5. Developer Financing
6. Lease/Develop/Operate or Build/Develop/Operate (Existing Facility Lease and Renovation)
7. Lease/Purchase (New Facility Construction)
8. Long-Term Lease (Under Executive Order 12803)
9. Merchant Facility
*10. Privatization
11. Sale/Leaseback
12. Self-Regulation (Inspection and Monitoring)
13. Tax-Exempt Lease
*14. Turnkey (New Facility Construction)

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

ASSET SALES
(Under Executive Order 12803)

Description: Executive Order 12803 directs all federal departments and agencies to support the privatization (sale or long-term lease from a State or local government to a private party) of infrastructure assets financed in whole or part by the federal government to the extent permitted by law and consistent with originally authorized purposes. The Executive Order also lays out the transfer price distribution and recoupment priorities needed to meet the disposition requirements of federal administrative grant requirements.

Actual Use: In July 1995, the Miami Conservancy District (MCD) , a government flood control agency serving the municipalities and counties abutting the Miami River near Dayton, Ohio, sold its 4.5 MGD wastewater treatment facility to Wheelabrator Environmental Operational Services (see the EFAB case study on the District in **Section 4.B.**). This historic transaction, approved by USEPA represented the first sale of a grant-funded wastewater treatment facility to the private sector under Executive Order 12803.

Potential Use: Asset sales could be used by local governments and authorities to attract private sector investment. This new investment could be used to upgrade and/or expand previously grant-funded, public-purpose wastewater treatment facilities, equipment, and services. Private investment represents a largely untapped, badly needed source of financing to help communities maintain environmental compliance and meet new mandates.

Advantages: An asset sale allows the public sector to take advantage of possible construction and operational efficiencies (faster time frames and lower costs) of the private sector and to unlock the potentially significant economic value of the public sector's wastewater treatment assets. In addition, the partnership arrangement offers an opportunity for the public and private sectors to share the regulatory risks and responsibilities as well as important economic benefits.

Limitations: The "asset sale" privatization process can be complex, politically sensitive, and time-consuming from a legal stand-point. Regulatory agency concerns and inexperience with this type of transactional arrangement may contribute to these barriers. While asset sales have received a lot of attention, few have been concluded successfully. There is little assurance that the public revenues gained will be reinvested in the environment.

Reference for Further Information: USEPA, Office of Water, Office of Wastewater Management, 401 M Street, SW, Washington, DC 20460 (Mail Code: 4201). Phone: 202-260-5880. Fax: 202-260-1040. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

BUILD/OPERATE/TRANSFER
OR
BUILD/TRANSFER/OPERATE
(New Facility Construction, Operation, and/or Ownership)

Description: Under the Build/Operate/Transfer (BOT) option, the private sector partner builds a facility to the specifications agreed to by the public agency (usually under a turnkey arrangement), operates the facility for a specified time period under a contract or franchise agreement with the agency, and then transfers the facility to the agency at the end of the specified period of time. In most cases, the private partner will also provide some, or all, of the financing for the facility, so the length of the contract or franchise must be sufficient to enable the private partner to realize a reasonable return on its investment through user charges. At the end of the franchise period, the public partner can assume operating responsibility for the facility, contract the operations to the original franchise holder, or award a new contract or franchise to a new private partner.

Actual Use: There have been quite a few BOT arrangements implemented for the provision of environmental services. For example, the City of Bristol, Connecticut, entered into a contractual arrangement with a private partner to design build, operate and own a resource recovery facility. In Lee County, Alabama, the county contracted with a private company to site, construct, operate and own a landfill in the county.

Potential Use: The Build/Operate/Transfer arrangement could be used in a substantial number of situations to build new wastewater and solid waste management facilities.

Advantages: BOT arrangements allow the public sector to capitalize on the construction efficiencies of the private sectors such as faster time frames and lower construction costs. Depending on the individual contractual arrangement, BOT may also allow the public partner to reap the benefits of private sector operating efficiencies. The arrangements may allow the private partner to enjoy the tax benefits of ownership and, in some cases, provide access to lower cost public financing.

Limitations: Like the case with turnkey arrangements, Build/Operate/Transfer arrangements must be individually negotiated. Many traditional low-bid governmental procurement policies often do not work very well.

Reference for Further Information: Apogee Research, Inc., Unpublished Paper: *Private Sector Involvement in Transit Maintenance: Sharing the Benefits and the Risks*, April, 1992.

CONTRACT SERVICES: OPERATIONS AND MAINTENANCE (Private Services Contract)

Description: A public partner (federal, State, or local government, agency, or authority) contracts with a private partner to provide and/or maintain a specific public environmental service. Examples of the type of service provided include lab testing, auditing, the collection of fines and penalties, solid waste collection and disposal, and the operation and maintenance of water and wastewater treatment facilities and systems. Under the private operation and maintenance option, the public partner retains ownership and overall management of the public facility or system.

Actual Use: This contractual arrangement is used by nearly one thousand local governments for wastewater treatment and by many thousands for the transportation and disposal of solid waste. Local governments have also used contract services to provide recycling services, asbestos encapsulation or removal operations, and many other municipal services. State governments have contracted out various parts of their environmental programs. For example, the monitoring of wastewater discharges in Wisconsin has been contracted out to a private laboratory by the State of Wisconsin's Water Quality Program.

Potential Use: Contract services could be used to provide and/or maintain services involving water and air quality monitoring, hazardous waste facility management, drinking water facility operation, hazardous waste remediation, and many additional activities in these and other environmental media.

Advantages: Depending on the nature of the activity or service, private sector operators have achieved efficiency savings of 10-40 percent compared to public sector operation and maintenance. Under some contract operation or service agreements, the risk of operations is shared with the private partner or even transferred to them entirely.

Limitations: In some cases, the transfer of formerly public services and operations to private companies can cause labor difficulties among public employees. Some local governments and authorities fear that contracting out may result in the possible loss of control over important public services for which they are held responsible by constituents.

Reference for Further Information: USEPA, Office of the Comptroller, Environmental Finance Program publication, *Public Private Partnerships Case Studies: Profiles of Success in Providing Environmental Services*, September, 1990, contains case studies on contract operations in solid waste removal, wastewater treatment, and drinking water utilities. USEPA Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

CONTRACT SERVICES:
OPERATIONS, MAINTENANCE, AND MANAGEMENT
(Private Services Contract)

Description: A public partner (federal, State, or local government, agency, or authority) contracts with a private partner to operate, maintain, and manage a facility or system providing a public environmental or other service. Under this contract option, the public partner retains ownership of the public facility or system, but the private party may invest its own capital in the facility or system. Any private investment is carefully calculated in relation to its contributions to operational efficiencies and savings over the term of the contract. Generally, the longer the contract term, the greater the opportunity for increased private investment because there is more time available in which to recoup any investment and earn a reasonable return.

Actual Use: Many local governments use this partnership to provide wastewater treatment services. The City of Indianapolis used it for two large advanced wastewater treatment facilities and saved $22.6 million dollars in two years (see the EFAB case study, on the City in **Section 4.B.**). Baltimore also has realized substantial savings. Local governments can use the arrangement for solid waste collection and disposal, recycling services, and other operations and services. States contract with private parties to operate, maintain, and manage highly specialized environmental activities such as the vehicle emissions testing programs needed to comply with the Clean Air Act.

Potential Use: This type of contract arrangement could also be more extensively used to provide services relating to water and air quality monitoring, solid and hazardous waste collection and disposal, drinking water facilities, and hazardous waste remediation. The 1997 Private Activity Regulation liberalized the treatment of tax-exempt funds used to finance public facilities under private management contracts, extending the contract term from five to 20 years.

Advantages: Depending on the nature of the activity or service, private sector operators have achieved efficiency savings of 10-30 percent compared to public sector operation and maintenance. The total projected savings for the Indianapolis project referenced above is $60 million over five years. Under many operations, maintenance, and management contracts, the risk of operations is shared with the private partner or transferred to them entirely.

Limitations: In some cases, the transfer of public services and operations to private companies can cause labor difficulties with public employees. Some local governments fear that contracting out may lead to loss of control over services for which they are held responsible by the public.

Reference for Further Information: USEPA Environmental Financial Advisory Board report, *Cost-Effective Environmental Management Case Studies*. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

DEVELOPER FINANCING

Description: Under developer financing, the private party (usually a real estate developer) finances the construction or expansion of an environmental facility in exchange for the right to build residential housing, commercial stores, and/or industrial facilities. The private developer contributes capital and may operate the facility under the oversight of the local government. The developer gains the right to use the facility and may receive future income from user fees. While developers may in rare cases build a facility, more typically they are charged a fee or required to purchase capacity in an existing facility. This payment is used to expand or upgrade the facility. Developer financing arrangements are often called capacity credits, sewer access rights, impact fees, or exactions. Developer financing may be voluntary or involuntary depending on local circumstances.

Actual Use: Anecdotal reports suggest the number of developer financed municipal facilities is significant and growing. One survey found 190 cities with populations of over 15,000 had tapped developers to finance wastewater treatment plants and sewer lines. This occurred most often in areas with rapid growth such as California, Colorado, Florida, and Texas. Developer financing also occurs where growth is tightly regulated or restricted, and/or where the value of the development is great. Other developer financed facilities have included drinking water systems (distribution lines, wells, treatment plants, and storage tanks), landfills, and trucks/equipment for solid waste disposal.

Potential Use: Developer financing arrangements might also be used to help acquire the capital needed to finance solid waste disposal, storm water management, and recycling facilities, as well as the establishment and/or purchase of riparian buffer zones. Proffers (exactions) or impact fees also could be used to acquire capital.

Advantages: Current users of the environmental service do not have to provide the capital needed to upgrading or expand the facility. The private partner gets the right, which it otherwise would not have, to develop lucrative residential, commercial, and/or industrial property.

Limitations: Developer financing is almost always limited to certain locations such as in rapid growth areas. The developer receives no preferential tax treatment. Most developers do not like to pay or manage for these facilities and often resist, even to the point of engaging litigation with local governments. Serious environmental problems can result if developers neglect or abandon the facilities, which has occurred in some localities.

Reference for Further Information: USEPA Publication 20M-2005, *Public-Private Partnerships Case Studies: Profiles of Success in Providing Environmental Services*, September 1990. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

LEASE/DEVELOP/OPERATE
OR
BUILD/DEVELOP/OPERATE
(Existing Facility Lease and Renovation)

Description: Under these partnership arrangements, the private party leases or buys a facility from a public agency, invests its own capital to renovate, modernize and/or expand the facility, and then operates it under a contract with the public agency.

Actual Use: A number of different types of municipal transit facilities have been leased and developed under various Lease/Develop/Operate (LDO) and Build/Develop/Operate (BDO) partnership arrangements.

Potential Use: LDO and BDO arrangements also could be used to acquire the private capital needed to finance upgrades to local environmental facilities, such as wastewater treatment plants or solid waste management facilities, to bring them into compliance with environmental regulations. By facilitating the lease of federally-grant funded wastewater treatment works, Executive Order 12803 on Privatization permits local governments to enter into LDO arrangements if and when they determine it beneficial and appropriate.

Advantages: Under LDO, the public agency may not have to provide the capital investment necessary for upgrading or expanding its environmental facilities. The public agency also may be able to take advantage of possible private sector construction and operational efficiencies. The private partner gets the right to operate the facility for a predetermined length of time and recover its investment through carefully crafted user charges.

Limitations: State and local governments may be concerned about negotiating and guaranteeing the correct operating contract with a particular vendor. In some States or areas, local governments and/or other authorities may lack the power to enter into lease arrangements. State regulatory or statutory action may be required for these governments/authorities to enable them to lease their environmental facilities.

Reference for Further Information: Apogee Research, Inc., Unpublished Paper: *Private Sector Involvement in Transit Maintenance: Sharing the Benefits and the Risks*, April, 1992. Contains a number of examples of LDO and BDO arrangements. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

LEASE/PURCHASE
(New Facility Construction)

Description: A lease/purchase is an installment-purchase contract. Under this model, the private sector finances and builds a facility which it then leases to a public agency. The public agency makes scheduled lease payments to the private party. The public agency accrues equity in the facility with each payment. At the end of the lease term, the public agency owns the facility or purchases it at the cost of any remaining unpaid balance in the lease. Under this arrangement, the facility may be operated by either the public agency or the private developer during the term of the lease.

Actual Use: Lease/purchase arrangements have been widely used for years by the General Services Administration for building federal office buildings. Pennsylvania and a growing number of other States (Departments of Corrections) have used lease/purchase arrangements to build prisons and other correctional facilities.

Potential Use: Lease/purchase arrangements could be used to provide the financing mechanism for wastewater treatment, solid waste disposal, and water storage facilities, as well as a wide variety of other environmental and non-environmental uses.

Advantages: The basic reason for this transaction is to enable a public agency to obtain a new facility without the need for the additional capital investment or debt. The private sector puts up the investment and the public agency pays for it over a set period of time. Private sector design and construction efficiencies may result in lower costs than would be incurred by a public agency. The interest earned from the transaction may be tax-exempt.

Limitations: The cost of the private capital used to finance the project may be higher than the cost of public capital, and may or may not outweigh the benefit gained from private sector construction efficiencies. There is also a slight possibility that the public agency could default on the lease and not end owning the facility.

Reference for Further Information: USEPA State Capacity Task Force Draft Report, *Alternative Financing Mechanisms*, August 1992. USEPA , Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R. See also *Municipal Tax-Exempt Lease Purchasing*, Richard Chambers, Touche Ross.

LONG-TERM LEASE
(Under Executive Order 12803)

Description: Executive Order 12803 directs all federal departments and agencies to support the privatization (sale or long-term lease from a State or local government to a private party) of infrastructure assets (including publicly-owned wastewater treatment works or POTWs) financed in whole or part by the federal government to the extent permitted by law and consistent with originally authorized purposes. The Order also lays out the transfer price distribution and recoupment priorities needed to meet the disposition requirements of federal administrative grant requirements.

Actual Use: No long-term leases have been implemented under the Executive Order to date. However, long-term leases have been successfully used for years in a wide range of public and private real estate and economic development situations.

Potential Use: Under the Executive Order, long-term leases could be used, where needed and appropriate, to attract increased private sector investment to previously grant-funded, publicly-owned, wastewater treatment facilities, equipment, and services. This new investment could be used to fund the rehabilitation, upgrade, and/or expansion of these important public assets needed to maintain environmental compliance and help meet future mandates.

Advantages: Long-term lease arrangements allow the public sector to capitalize on the operational and construction efficiencies enjoyed by the private sector and to unlock the potentially significant economic value of previously grant-funded public wastewater treatment assets. In addition, the public and private sectors can use this type of partnership arrangement to share regulatory risks and responsibilities, as well as economic benefits.

Limitations: The use of long-term leases to privatize wastewater treatment assets under the provisions of Executive Order 12803 remains untested at this time. Given this lack of experience, this privatization process may prove to be complex, politically sensitive, and time-consuming from federal, State, and local regulatory standpoints.

Reference for Further Information: USEPA, Office of Wastewater Management, 401 M Street, SW, Washington, DC 20460. Mail Code: 4201. Telephone Number: 202-260-5880. Fax Number: 202-260-1040. USEPA Environmental Financial Advisory Board Report, *Private Sector Participation in the Provision of Environmental Services: Barriers and Incentives*, November 25, 1991. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

MERCHANT FACILITY

Description: In this type of partnership arrangement, the private sector party not only owns and operates the environmental facility, as in privatization deals (see the next tool in this section, **Privatization**), but it also makes the decision to provide the environmental service to the community in the first place. The concept is similar to that of fast food, clothing store, or automotive services franchises except that it involves the provision of an environmental service.

Actual Use: Merchant facilities have been generally associated with the provision of solid waste management services such as landfills, composting facilities, recycling plants, and resource recovery facilities (mass-burn incinerators). Examples of diverse communities having merchant facility solid waste composting plants include Milbury, Massachusetts (population 11,500), and Saint Cloud, Minnesota (population 181,570). Lee County, Alabama, (population 80,800), is an example of a community where efficient landfill service is provided through a merchant facility arrangement.

Potential Use: Given favorable economics and community support, merchant facilities could more frequently provide environmental services in any of the solid waste management areas listed above. In addition, if political hurdles can be overcome, merchant facilities arrangements might also be used to facilitate the rail transportation of solid waste from point of generation to point of disposal. This may become necessary as large cities begin to run out of local disposal sites and must transport their solid waste to sites farther away from their metropolitan regions.

Advantages: Through the use of merchant facility arrangements, the public sector enjoys access to private sector financing, superior technology, and considerable operating expertise. Merchant facilities can be built more quickly and at a lower costs, in large part, because they do not need to go through the public sector procurement process. This type of partnership arrangement shifts the regulatory responsibilities to the private sector. If they are efficiently built, maintained and marketed, merchant facilities can be very profitable for the private owner and operator.

Limitations: There may be local employee/union opposition to privately owned and run public-purpose facilities. The private investment required is large and facility use must be maximized. The private party can suffer financial difficulties if service demand falls or low-cost competition Thus, there are many situations in which the public and private sector have competed for solid waste delivery, giving rise to lawsuits and other complaints, such as in New York.

Reference for Further Information: USEPA Publication 20M-2005, *Public-Private Partnerships Case Studies: Profiles of Success in Providing Environmental Services*, September 1990. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

PRIVATIZATION

Description: In privatization, the public sector (usually a local or State government) decides to provide an environmental service and looks to the private sector for help in meeting that need. The private sector contracts to design, build, own and operate the desired environmental facility. Generally, the private party partially or totally finances the project. They may, however, access tax-exempt financing available through the State for public-purpose projects (see also **Section 2.A., Private-Activity Bonds**, for a summary of eligibilities by environmental media).

Actual Use: Privatization is very common for solid waste management and drinking water systems, but is still rare for wastewater treatment. Frequently, the privatized facilities provide services to more than one government or community. A good example of privatization is a resource recovery facility (mass-burn incinerator) built in Bristol, Connecticut in the late 1980s. In this case, eight Connecticut communities entered into an agreement with a private party to make the facility possible. The State issued private activity tax-exempt bonds to finance the project and an expanded group of eleven communities contracted together to oversee facility operations and agreed to provide a minimum amount of waste to it each year. There are many rate-regulated privately owned water supply companies nationwide, some of which are very large and operate in multi-states. In two States, Connecticut and Missouri, the majority of population is served by private water companies

Potential Use: Further privatization deals are possible in the environmental areas named above in cases where groups of communities can agree to site and share a common facility. They are also possible in areas where high user fees already exist. Such deals could be used to finance other environmental technology approaches such as waste-to-energy-facilities and advanced treatment wastewater plants. The Drinking Water State Revolving Fund can provide low-cost loans to even regulated water companies.

Advantages: Privatization allows the private party to bring sophisticated technology to the solution of environmental management challenges. It also allows the public sector to share or transfer the risks of the technology and future environmental compliance responsibilities with the private sector.

Limitations: Public tax-exempt financing may not be available for all private, public-purpose environmental projects. The reduction in tax incentives resulting from the Tax Reform Act of 1986 greatly reduced private interest in this partnership option, particularly for wastewater. Frequently, privatized facilities must provide services to numerous governments to make economic sense.

Reference for Further Information: USEPA Publication 20M-2005, *Public-Private Partnerships Case Studies: Profiles of Success in Providing Environmental Services*, September 1990. USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

SALE/LEASEBACK

Description: A sale/leaseback is a financial arrangement in which the owner of a facility sells it to another entity, and subsequently leases it back from the new owner. Both public and private entities may enter into sale/leaseback arrangements for a variety of reasons. For example, a tax-exempt lease, is a particular type of sale/leaseback arrangement in which a public entity sells a facility to a private partner in order to finance construction or upgrades, and repays the private partner's investment with lease payments (see write-up on **Tax Exempt Lease** later in this section). Another innovative application of the sale/leaseback technique is the sale of a public facility to a public or private holding company for the purposes of limiting governmental liability under environmental statutes. Under this arrangement, the government that sold the facility leases it back and continues to operate it. Since ownership remains with the holding company, however, the government may not be held financially liable for potential violations of environmental regulations.

Actual Use: Sale/leaseback arrangements can be used by both State and local governments. Phoenix, Arizona is setting up a sale/leaseback arrangement to sell an environmental facility to a municipal holding company that has the power to issue tax-exempt bonds. The government will lease and operate the facility while the holding company will retain ownership and the risk of environmental liability associated with the facility.

Potential Use: Sale/leaseback arrangements could be used to limit potential governmental liability from operation of hazardous waste disposal facilities.

Advantages: Sale/leaseback arrangements can sometimes provide private sector financing for a facility (as with a tax-exempt lease), and may be able to limit a government's potential liability. If a sale/leaseback arrangement involves private ownership, the private partner gains the tax benefits of depreciation on the facility.

Limitations: Enacting sale/leaseback arrangements may be difficult under State or local law. In exchange for the protection from liability, the public partner may be concerned about losing control over the facility.

Reference for Further Information: Gelfand, M. David, *State and Local Government Debt Financing*, Volume 2, Callaghan & Company, Deerfield, Illinois, December, 1988. Contains general definition and description of sale/leaseback arrangements. For further information on sale/leaseback arrangement in Phoenix, contact George Britton, City Manager, (602) 256-3248.

SELF-REGULATION
(Inspection and Monitoring)

Description: Self-regulation is a form of environmental enforcement wherein private sector industry is responsible for inspecting and monitoring its own discharges and emissions with some reduced form of governmental oversight such as a State auditing program. The State auditing program may review all instances of self-regulation or may review a random sampling of these partnerships each year.

Actual Use: Some State governments have already contracted out various portions of their environmental programs and activities. For example, the Wisconsin water quality program has contracted out monitoring of wastewater discharges to a private laboratory. Ohio is in the process of contracting out a significant portion of its State voluntary cleanup program for brownfields properties. Ohio plans to maintain oversight of private party cleanup efforts through the operation of an audit program.

Potential Use: The self-regulation approach works best for industries that generate relatively low quality and quantity pollutant streams. It is also a feasible approach for those industries and/or private companies with minimal incentive to pollute or with good compliance histories.

Advantages: Self-regulation does not generate revenue per se, but does present significant cost savings to the governing enforcement agency through reduction in program implementation, oversight and inspection. It allows the enforcement agency to focus its efforts on other industry (ies) that presents a greater and more immediate environmental threat, or is more capable or likely to pollute the environment.

Limitations: Over time the polluting strength of a given industry may change, thereby presenting a greater risk in allowing self-regulation. The approach imposes costs upon the industry that is self-regulating. Industries that are not designated as self-regulating may protest the burdens they face from excessive governmental regulation. Audit programs using sampling techniques may not catch self-regulators who are violating their agreements (polluting).

Reference for Further Information: The State of Wisconsin's water quality program can be contacted for information on its wastewater discharges monitoring contract. The State of Ohio has information on its State voluntary cleanup program.

TAX-EXEMPT LEASE

Description: Under a tax-exempt lease arrangement, a public partner finances capital assets or facilities by borrowing funds from a private investor or financial institution. The private partner generally acquires title to the asset, but then transfers it to the public partner either at the end or the beginning of the lease term. The portion of the lease payment that is used to pay interest on the capital investment is tax-exempt under State and federal laws.

Actual Use: Tax-exempt leases have been used to finance a wide variety of capital assets, ranging from computers to telecommunication systems to municipal vehicles/fleets such as buses, police cars, fire trucks, and garbage trucks to professional sports arenas and stadiums.

Potential Use: Tax-exempt leases are another method of capital financing that could be applied to environmental facilities and equipment. Since the lease arrangements usually do not count against local statutory debt limitations, they may be a particularly valuable tool for communities whose debt capacity is nearly exhausted.

Advantages: The primary advantage to the local government is the fact that it can use the tax-exempt lease to access capital from the private sector without having to issue a bond or some other public debt instrument. In addition, the public partner can often use the tax-exempt lease to acquire private capital at discounted rates. The private partner, meanwhile, realizes the benefit of tax-exempt income from the interest portion of the lease payments.

Limitations: Since some lease arrangements are long-term, the public partner must have the authority to enter into long-term contracts. If they do not have this authority, State regulatory or statutory action may be necessary to grant it to them. This may prove to be a difficult and time-consuming process.

Reference for Further Information: USEPA State Capacity Task Force Draft Report, *Alternative Financing Mechanisms*, August 1992. USEPA , Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R. *Municipal Tax-Exempt Lease Purchasing*, Richard Chambers, Touche Ross.

TURNKEY
(New Facility Construction)

Description: Under a turnkey arrangement, a public agency will contract with a private investor or vendor to design and build a complete facility in accordance with specified performance standards and criteria agreed to between the agency and the vendor. The private developer will commit to build the facility for a fixed price and will absorb the construction risk of meeting that price commitment. Generally, in a turnkey transaction, the private partners will use fast-track construction techniques (such as design-build) and will not be bound by traditional public sector procurement regulations. This combination often enables the private partner to complete the facility in significantly less time and for less cost than could be accomplished under traditional construction techniques. In a turnkey transaction, financing and ownership of the facility can rest with either the public or private partner. For example, the public agency might provide the financing, with the attendant costs and risks. Alternatively, the private party might provide the financing capital, generally in exchange for a long-term contract to operate the facility.

Actual Use: A large number of State and local governments have used turnkey agreements to build wastewater treatment plants and solid waste disposal facilities. For example, the City of Huntsville, Alabama, created a Solid Waste Disposal Authority that contracted with a private partner to design, construct, and operate a mass-burn incinerator owned by the authority. Furthermore, the steam generated by the facility is sold to a federal arsenal.

Potential Use: Turnkey agreements would be particularly suited to build facilities that require highly-specialized technology, such as hazardous waste disposal, waste-to-energy generation, or vehicle emissions inspection.

Advantages: Turnkey agreements take advantage of the private sector procurement process and potential construction efficiencies, which allows private facilities to be built faster and more cheaply than comparable public facilities.

Limitations: Implementation of a turnkey transaction requires that a public agency be able to negotiate a contract with a private vendor. The traditional "low-bid" procurement frequently will not work for a turnkey project.

Reference for Further Information: *Public Private Partnerships Case Studies: Profiles of Success in Providing Environmental Services*, September, 1990, USEPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460. Mail Code: 2731R.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR PUBLIC-PRIVATE PARTNERSHIP ARRANGEMENTS

Criteria/ P3 Tool	**Actual Use**	**Revenue Size**	**Revenue Cost/ Savings**	**Administrative Ease**	**Equity**	**Environmental Benefits**
Asset Sales	Low	Mod.	High	Low	Mod.	Mod. - High
***Build/Operate/ Transfer, etc.**	Mod. - Low	Mod. - High	Mod. - High	Mod.	Mod.	High
***Contract Services (O&M)**	High	High	Mod.- High	Mod.- High	Mod.	Mod.
***Contract Services (O&M&M)**	High	High	High	Mod.	Mod.	Mod.
***Developer Financing**	High	High	Mod.	Mod.	Low	Mod.
Lease/Develop/ Operate or Build/ Develop/Operate	Low	Mod.	Mod. - High	Low	Mod.	Mod.
Lease/Purchase	Low	Mod.	Low - Mod.	Low - Mod.	Mod.	Mod.
Long-Term Lease	Low	Low - Mod.	Mod.	Low	Mod.	Mod.
Merchant Facility	Mod. - High	High	Mod.	Mod. - High	Low	Mod. - High
***Privatization**	High	Mod. - High	Low - Mod.	Mod.	Mod.	High

COMPARISON MATRIX continued

Criteria/ P3 Tool	Actual Use	Program Size	Revenue Cost/ Savings	Admini-strative Ease	Equity	Environ-mental Benefit
Sale/ Leaseback	Low - Mod.	Low - Mod.	Low - Mod.	Low - Mod.	Mod.	Mod.
Self-Regulation (Inspection & Monitoring)	Low.	Low	High	Mod.	Mod.	Mod.
Tax-Exempt Lease	Mod.	Low - Mod.	Mod. - High	Low-Mod.	Mod.	Mod.
***Turnkey**	High	High	Mod.-High	Mod.-High	High	High

High -High use (over 25 States, many localities/private sector); most environmental media covered (water, wastewater, solid waste, air, etc.); criteria score high (e.g., program lowers costs, is easy to use, readily available, and results in improved facility construction and management)
Mod.-Moderate use (10-25 States, some localities/private sector); programs include two or more environmental media; criteria score in medium range
Low - Low or rare use; scope is very limited; one or more major implementation problems exist

*Star indicates best rated mechanisms

4.B. EFAB PUBLIC-PRIVATE PARTNERSHIP AND OPTIMIZATION CASE STUDIES

4.B. EFAB PUBLIC-PRIVATE PARTNERSHIP AND OPTIMIZATION CASE STUDIES

The Environmental Financial Advisory Board (EFAB) is a federally chartered advisory board that provides independent advice to EPA on issues relating to environmental finance. EFAB is comprised of nationally recognized experts drawn from government; the finance, banking, and legal communities; business and industry; and national organizations. EFAB has produced more than twenty major reports and advisories since 1989, identifying numerous policy and program options across a broad spectrum that seek to lower the costs of environmental protection, increase public and private investment, and build and local financial capacity to carry out environmental programs (see **Section 5.A., Environmental Financial Advisory Board**).

The Board's Cost Effectiveness Environmental Management Workgroup has focused on identifying institutional models that communities have used to create more cost effective environmental services. The workgroup recognizes that in some cases these models may be public-private partnership arrangements, while in other cases, communities may look internally to optimization, competitivization, or re-engineering approaches. In its deliberations, the workgroup determined that it would produce two products:

- A "Compendium of Case Studies" showcasing cutting edge examples of how communities have implemented successful public-private partnerships and optimization models. These case studies include a discussion of the lessons learned from these case studies and how this information might be used in helping other communities design their own approaches.

- A "How To Handbook" providing guidance to local officials and managers when evaluating the feasibility of various public-private partnership arrangements and internal models. The handbook would also discuss ways that various models might be implemented.

The case study abstracts on the following pages are brief summaries that attempt to capture the essence of the first series of EFAB public-private partnership/optimization case studies. The work of the Board's Cost Effective Environmental Management Workgroup is freely acknowledged and greatly appreciated. We believe that these abstracts both supplement and complement the public-private partnership arrangements presented in **Section 4.A.**. They provide concrete examples to local officials of how successful partnerships and other models can be used by communities to provide needed environmental services more efficiently. They also show how public-private partnerships can be used as a way to provide substantial benefits to both the public and private sectors, creating the classic "win-win" situation.

LIST OF
EFAB PUBLIC-PRIVATE PARTNERSHIP
AND OPTIMIZATION
CASE STUDIES
(In Alphabetical Order)

1. Charlotte, North Carolina
   (Contract Operations and Maintenance)
2. Indianapolis, Indiana
   (Contract Operations, Maintenance, & Management)
3. Jersey City, New Jersey
   (Contract Services)
4. Miami Conservancy District, Ohio
   (Asset Sale Under Executive Order 12803)
5. New Orleans, Louisiana
   (Contract Operations)
6. North Brunswick Township,
   (Concession Operations)
   New Jersey
7. Oklahoma City, Oklahoma
   (Contract Operations)
8. Philadelphia, Pennsylvania
   (Contract Operations)
9. West New York, New Jersey
   (Contract Operations)
10. Wilmington, Delaware
    (Asset Sale/Privatization)
11. Wixom, Michigan
    (Contract Operations)

CHARLOTTE, NORTH CAROLINA
(Contract Operations and Maintenance)

Description: The City of Charlotte seeks competition and outsourcing to reduce the costs of public services. Water and wastewater services are provided to Charlotte and Mecklenberg County by the Charlotte-Mecklenberg Utilities Department (CMUD) which runs three water treatment plants and five wastewater treatment plants. To explore cost savings through public-private partnership, CMUD offered the Vest Water Treatment Plant and the Irwin Creek Wastewater Treatment Plant for contract operations. The partnership offered was a five-year contract (a three year contract with two one-year renewal options) for operations and maintenance of the facilities only. Each plant was treated as a separate procurement, but firms were allowed to submit a combined proposal in addition to the individual ones, if there was a cost savings to the City.

Demographics: The City and County have a strong economy with significant growth and these trends are expected to continue. The service area includes Mecklenberg County (about 500,000 people) and both plants are in Charlotte, NC. The Vest plant treats 16-24 million gallons a day (MGD) and has a hydraulic capacity of about 30 MGD. The actual range of finished water ranges from 6-46 MGD. The Irwin plant treats an average of 12 MGD of mostly domestic wastewater, with a design capacity of 15 MGD. Secondary treatment is based on a modified Bio-Filter activated sludge process and recently completed upgrades add a single media filter to provide tertiary treatment. CMUD has not experienced recent compliance problems.

Procurement/Competition: The City used a two-stage procurement process which began in late spring 1995. The first was a request for qualifications from firms interested in proposing on one or both projects. Separate statements of qualifications (SOQs) were required for each. The City received nine SOQs for the Vest project and eight for the Irwin project. SOQs were evaluated based on management arrangements, experience, key staff experience and qualifications, technical resources, financial resources, performance history, and project understanding/contracting suggestions. The SOQs received were of high quality and only one firm did make the short-list.

Including the in-house proposal (it was pre-qualified), seven proposals were submitted for Vest and six for Irwin. The main criterion for evaluating proposals was cost. Technical criteria included the quality and reliability of proposed operations and maintenance services, level and skill of staff, transition plan, and specific areas of risk for each proposal. Considerable efforts were taken to ensure a level playing field for all proposers, particularly in regards to separating the in-house proposal team from the procurement team, and in fairly allocating indirect department and City overhead costs to the in-house proposal. In addition, an independent consulting team was hired to manage the procurement process, and assist in evaluating qualifications and technical/cost proposals.

CHARLOTTE, NORTH CAROLINA

Proposer Selected: The City selected CMUD's in-house team to operate both plants. Their proposed price was substantially lower than the lowest privatizer's price. Technically, the City's in-house proposal was comparable to the privatizers' proposals. The in-house proposal reduced costs through staff reductions, increased automation, and improved process control equipment. The City set up a separate cost center to track the performance of the in-house team in meeting cost-saving goals. Failure to meet the goals allows the non-binding memorandum of understanding with the in-house team to be ended and operation of the plants again offered for privatization. Employee bonuses are based on cost savings exceeding those guaranteed in the proposal. The contract began July 1, 1996.

Benefits: Based on the City's in-house proposal, costs savings of about 30% are expected the first year compared to the previous year's budget. Since the operation of these two plants is only a small part of the total CMUD budget, the impact on rates will not be significant over the five-year time frame of the contract. However, the implications for achieving similar savings throughout CMUD operations may have a significant impact on long-term costs and future rates. The City expects to benefit from improved maintenance and the corresponding preservation of its assets.

Drawbacks: None. Cost of capital was not an issue since the City was retaining responsibility for capital expenditures and none are expected over the five-year term of the contract. The City view of privatization is still favorable and perceived loss of control is not an issue. The City believes it can maintain control via the provisions of the service contract and by owning the land and assets.

Lessons Learned: Even though the City choose not to privatize, the procurement was successful and valuable lessons were learned, including:

- Open communications between the City and private parties are essential.
- The evaluation process must be objective and provide a level playing field for all proposers.
- A two-step procurement can be an effective way to streamline the process.
- Requests for Proposal should include comprehensive and explicit draft service agreements.
- Both sides must understand the maintenance risks assumed by the contract operator so that cost-effective proposals can be prepared and evaluated.
- Given the same flexibility as a private party, a public entity can achieve major cost savings.
- The proposal process must provide all participants an equal opportunity to develop creative and cost-effective proposals.

Reference for Further Information: Doug Bean, Director, Charlotte-Mecklenberg Utility Department, 5100 Brookshire Boulevard, Charlotte, NC 28216. Telephone Number: 704-391-5073. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

INDIANAPOLIS, INDIANA
(Contract Operations, Maintenance, and Management)

Description: This partnership involves the contract management, maintenance and operations of two advanced wastewater treatment (AWT) facilities by a private operator. Prior to the contract, both facilities were sophisticated, state-of-the-art, and operated at a high level of efficiency. The facilities include preliminary treatment, primary clarification, biological treatment via bio-roughing and oxygen nitrification, followed by secondary clarification, effluent filtration, and ozone disinfection prior to effluent discharge into the river. Also included in the contract were the associated sludge handling facilities, laboratories, and pretreatment programs. Excluded from the contract were sewer collection, billing and collection, and customer service functions. Major capital improvements remain the responsibility of the City.

Demographics: The Indianapolis area has a very stable and diversified economy, with average growth of approximately 1.5% annually. The two AWT facilities serve 850,000 to 900,000 people (400,000 accounts) in the greater Indianapolis area, which includes all of Marion County. Total average treatment capacity of the plants is 300 million gallons per day ("MGD") - 150 MGD each. The plants were 11 years old in 1993 when the procurement began.

Procurement/Competition: The City wanted to improve operation, maintenance, and management (OM&M) while cutting costs and generating revenue for system improvements. The City looked at many options and chose to compete the OM&M of the facilities. In selecting this option, the City retained the tax advantages of public ownership and gained savings via private sector efficiencies.

A task force was formed to evaluate proposals. It included members of the City-County Council, utility management and staff, regulatory officials, general citizens, and the union -- the American Federation of State, County, and Municipal Employees (AFSCME). Relations between the City and AFSCME were originally constrained, but they improved over the course of the procurement. The winning proposer honored the agreement between AFSCME and the City and guaranteed jobs. All employees were placed within two months. The entire process, including the preparation time for procurement, took 8 to 10 months. It cost $200,000 to $300,000 for advisors, consultants and engineers. This amount was recovered by the City through contract savings within a few weeks.

Proposer Selected: White River Environmental Partners (WREP), a group of private firms, was selected to operate, maintain, and manage the two AWT facilities. WREP's proposal guaranteed 38% savings over the previous year's budget, and the professional capabilities of the companies in the group were considered superior to the other proposers. WREP must meet NPDES requirements, is responsible for any penalties as a result of violations, and must maintain the same effluent level or better than under City operations. WREP is subject to selective audit by an overseeing "board" to ensure both compliance with the contract and the quality of private operations.

INDIANAPOLIS, INDIANA

Benefits: WREP operations are projected to save about $60 million over five years. Between 1993 and 1994, the facilities' O&M budget was reduced from $30 million to $17 million and the number of employees reduced from 328 to 196. By June 1996, 168 WREP employees staffed the facilities.

The City has held rates constant due to savings, but they are expected to grow slowly in the future due to inflation. Instead of lowering rates, the City puts savings into a Sewer Sanitary Fund used to improve the City's system. These funds have been used to dry out interceptors and collector systems and to provide sewer service to new areas.

Effluent violations have been cut from seven under City operations to one even though rains have been heavier than usual. The facilities accident rate decreased by 80% in the first two years of the contract and the Indiana Water Pollution Control Association gave its 1995 safety award to WREP. Since the contract began, employee grievances have dropped from 38 in 1993 to 1 in 1994, and none in 1995.

Drawbacks: The contract is only for five years. At the end of the contract term, the contract will have to be renegotiated. Any changes desired by the City or the private operator at that time must be incorporated into a new contract, or the City will need to re-propose the operations.

Lessons Learned: Although Indianapolis approaches each competition individually, it has developed general principles which guide its efforts:

- The key to positive results is public and open competitions.
- Evaluations teams need to be inclusive and formed early in the procurement process.
- Employees are encouraged to compete and unions to be involved in the process. (The creativity of these competitions was recognized in 1995 by an *American Government Award* from the Ford Foundation, presented jointly to the union and the City.)
- Although the City gets advice from experts, when in doubt it lets the marketplace speak. The study conducted for the two AWT facilities underestimated savings of by 30-35%.
- Deal documents need to explicitly address performance standards, and provide incentives for vendors to attain and maintain performance goals. Provisions must be implemented with effective contract oversight and management by the City.

Reference for Further Information: Tom Olsen, Director of Enterprise Development, City of Indianapolis, City-County Building, Suite 2460, 200 East Washington Street, Indianapolis, Indiana 46204. Telephone Number: 317-327-4794. Fax Number: 317-327-4954. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

JERSEY CITY, NEW JERSEY
(Contract Services)

Description: In the summer of 1995, the City of Jersey City (City) sought to privatize the operations of its Water Department through the efforts of a new Mayor elected on a pro-business and privatization platform. After investigating options, the City projected that large cost savings and the increased revenue could be achieved through a public-private partnership. After issuing a comprehensive Request For Proposals (RFP) and carefully evaluating the proposals, the City entered into a three-year operating contract (with two optional one-year renewals) with United Water Resources (UWR).

Demographics: Jersey City has a favorable cost of living and tax environment for attracting business. Wages are relatively low as are taxes and other city charges for utility services. Many New York City companies have offices in the City due to the lower cost of doing business. In recent years the City has had economic problems, and as a result, the Mayor has focused on the City's economic development and financial challenges. He has been instrumental in promoting privatization and desires the most cost-effective method for providing water services.

The Jersey City Water Department provides water service to about 32,000 retail customers located in the New Jersey metropolitan area across the Hudson River from New York City. Potable water is pumped via aqueduct to the Jersey City area, where it is distributed to retail customers. Wholesale customers in Hackensack, New Jersey and the municipalities of Hoboken, Lyndhurst, and West Caldwell are served along the aqueduct.

The City-owned system consists of two reservoirs, 5,700 acres of watershed property surrounding them, a treatment facility, and an extensive transmission and distribution system. The reservoirs have capacities of 3.3 and 8.0 billion gallons a day, respectively. The 80 million gallons per day (MGD) water treatment facility receives average daily flows of about 55 MGD. The water treatment plant is located adjacent to one of the reservoirs, 23 miles northwest of the City.

The City has had compliance problems with State and federal regulations in the past. In particular, the City had been stockpiling sludge from the water treatment plant and was forced to dispose of this stockpile, and further sludge generated, into a regulation disposal site.

Procurement/Competition: A steering committee was formed, consisting of members of the City Council and key staff personnel involved in providing water services. Labor unions were active in the process, as were water utility managers and the City's Business Manager. Raftelis Environmental Consulting Group managed the privatization feasibility and procurement process, assisted by W.R. Lazard on financial issues.

JERSEY CITY, NEW JERSEY

A detailed RFP was prepared and proposers were evaluated on technical merit, management, operations and maintenance approach, experience and responsiveness, ability to meet contract obligations, and price. New Jersey had recently passed a privatization procurement act for water utilities and the procurement required approval from several State agencies. The procurement took about one year, cost $300,000 to $350,000, and the contract was signed on April 1, 1996. Given projections for savings and increased revenues, gaining the City Council's support was straightforward. Labor unions were brought into the process early and were heavily involved in negotiating the contract. An innovative leasing of employees was the basis for agreement. The contract required the privatizer to use all employees for at least one year.

Proposer Selected: The City entered into a three-year operating contract with UWR. The contract privatized all water services including source of supply, treatment, distribution, meter reading, billing and collection, and laboratory services. UWR assumed liability for any fines due to regulatory violations. The City retained rate setting and policy making functions. A creative cost-sharing approach was negotiated to encourage a decrease in uncollectible, promote marketing of water services to new wholesale customers, and reduce the amount of unaccounted-for water.

Benefits: The City is projected to save about $38.5 million over the five-year contract period: a $2.5 million up-front concession payment to the City by UWR; $17.5 million in operational savings; and $18.5 million from increased revenues to the utility via improved collections and bulk water sales. The contract has incentive clauses which allow UWR to earn additional revenue if it increases the collection rate and successfully markets excess water. Instead of lowering rates, the City is using cost savings for capital improvements in the system. UWR has begun a comprehensive predictive and preventive maintenance program unavailable to the City. Privatization is expected to lead to improved customer service and expanded opportunities for employees via training and higher pay.

Drawbacks: Although unions were included from the beginning, the transition of labor to private operations was difficult. Since UWR chose to base its customer service operations in its Hackensack headquarters, concerns were raised about UWR's ability to be as responsive as City operations.

Lessons Learned: A comprehensive, detailed RFP and frank negotiations with all parties are essential. A Draft Service Agreement which gave proposers expected contractual requirements was invaluable at the time of actual contract negotiations as all parties were on the same page. Labor negotiations played a major role in the privatization process and cannot be downplayed.

Reference for Further Information: Daniel F. Mahoney, Jr., City of Jersey City, 325 Palisades Ave, Jersey City, NJ 07307. Ph: 201-547-5157. Fax: 201-547-6586. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Phone: 704-556-1936. Fax: 704-556-1937.

MIAMI CONSERVANCY DISTRICT
(Asset Sale Under Executive Order 12803)

Description: This partnership involved the sale of a wastewater treatment facility by the Miami Conservancy District (MCD) to Wheelabrator Environmental Operational Services (WEOS). The transaction was the first sale of a grant-funded environmental facility to the private sector under Executive Order 12803, signed in April 1992. MCD is a flood control government agency serving the counties abutting the greater Miami River in the Dayton, Ohio area. The plant was built in 1972 at a cost of $3.2 million, including a $1.75 million federal grant. Upgrades and expansions totaling $7.5 million were completed in 1984, 1989, and 1991. Since the municipalities and counties had existing service agreements with MCD, it was necessary for them to approve the sale of the facility.

Demographics: The Franklin wastewater treatment plant serves 40,000 people in the municipalities of Carlisle, Franklin, and Germantown, and incorporated areas of Montgomery and Warren counties. Growth has been moderate but steady. Area governments have focused on economic development. The 4.5 million gallons per day (MGD) facility serves 8,000 households. Several major industries represent 33% of the plant's total effluent flow and over 75% of plant loadings. The facility was built to treat a combination of industrial and domestic waste. Current flows average just over 2.0 MGD.

Procurement/Competition: Flood control is MCD's major mission and it recognized the need to divest itself of the wastewater facility and concentrate on this main focus. MCD moved to contract operations of the Franklin facility in July 1987. Over the next several years, MCD considered full privatization. As a result of Executive Order 12803, the full privatization of the Franklin plant became a possibility. The proposed sale of the Franklin facility as an EPA pilot project was approved in December 1992.

The plant is regulated by the Ohio EPA. The transfer of the Domestic Sewage Exclusion (DSE) from MCD to the private and public partners (WEOS and the three municipalities of Carlisle, Franklin, and Germantown) was a key issue in the sale. In addition, the Ohio Water Development Authority (OWDA) had loaned approximately $5.0 million to MCD for upgrades and expansions, and OWDA had to approve the transfer. Another key element of the transfer was the assurance that the OWDA tax-exempt status of the current outstanding bonds would be preserved.

Major community participants included the MCD General Manager and the leaders of the affected communities. The Ohio EPA, EPA Region V in Chicago, the US EPA Headquarters, and the US Office of Management and Budget were all key in approving the sale of the facility. The sale was approved July 11, 1995. The feasibility analysis cost $35,000 and supporting activities cost $150,000. Community consensus was achieved by committed involvement from the municipal managers, MCD Director, community advisors, and Wheelabrator EOS. Montgomery and Warren counties were brought on board at a later date to support the project.

MIAMI CONSERVANCY DISTRICT

Proposer Selected: After significant economic analysis, policy evaluation, and other relevant considerations, MCD, the bulk municipal customers, and WEOS agreed to the sale of the facility to WEOS. WEOS had been the successful contract operator for over six years. WEOS had a long history of dealing with similar transactions in the waste energy business, and Ohio law allowed MCD to conduct negotiations with Wheelabrator EOS without going through a procurement process.

The municipalities retained ownership of the land and a prepaid lease was structured to pay the municipalities for use of the land by WEOS. A 20-year service agreement, with two five year options, was used to effect the transfer. The contract requires WEOS to comply with environmental regulations and maintain customer service levels. The contract also requires that WEOS expand the facility at certain threshold points. Formulas were put in the service agreement which allow for the recovery of expansion costs. The three municipalities and WEOS are co-permitees of the facility. An advisory board of representatives from the municipalities and the counties works with WEOS.

Benefits: The communities were able to assign certain ownership risks to the private partner in the contract, and can repurchase the facilities at the end of 20 years. Over the contract period, the cost of continued MCD operation versus WEOS operation will be basically the same. WEOS can make only reasonable returns, similar to what would be achieved under regulation by the Ohio Public Utility Commission. WEOS's cost in the early years will be much lower than MCD'S, but as existing bonds are paid off, MCD costs will fall. The plant sale to WEOS is, in effect, a refinancing of the mortgage of the plant over the contract term. The rate charged for sewage was cut by 14%.

Drawbacks: The privatization process was complex and the large number of parties involved made reaching consensus difficult. The amount of time it takes to navigate the approval process, particularly when federal approvals are required for the sale of grant-funded assets, is very lengthy.

Lessons Learned: All affected political jurisdictions need to be on board early. By not including Montgomery and Warren counties early on, the consensus process took longer as all agreements were executed. Do not underestimate the time it takes to privatize when federal approvals are needed to sell grant-funded assets. Gaining approvals for a sale is complex and requires appropriate internal and external input and commitment. Negotiation with a private contractor is a careful and important process. It is essential to negotiate with the proper resources, time frame and venue in mind. Appropriate economic, legal, and engineering input is key in the privatization process.

Reference for Further Information: Jim Rozelle, General Manager, Miami Conservancy District, 38 East Monument, Dayton, OH 45402. Telephone Number: 513-223-1271. Fax Number: 513-223-4730. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

NEW ORLEANS, LOUISIANA
(Contract Operations)

Description: The Sewerage and Water Board of New Orleans (S&WB), a statutory body of the Louisiana constitution, owned and operated two wastewater treatment plants providing secondary treatment of wastewater in the greater New Orleans area. The S&WB was having difficulty meeting permit levels for effluents, operating costs were increasing, and the maintenance program could not keep pace with facility repair requirements. In 1991, the S&WB funded a $1.7 million capital improvements program to rehabilitate major equipment and contracted with the Professional Services Group (PSG) to operate, maintain, and manage its two sewage treatment plants for a five-year term. PSG operations have saved the S&WB an average of $ 1.1 million a year since 1991.

Demographics: The two plants serve approximately 165,000 customers in the greater New Orleans area (population of 480,000). The customer base consists of retail customers, mainly residential and 1% industrial. In addition to year-round tourism, the City of New Orleans (City) is a major shipping port, especially for grain and petrochemicals.

The East Bank treatment facility is a 122 million gallons per day (MGD) pure oxygen activated sludge plant. It processes over 90% of the City's wastewater. Although the facility is rated at 122 MGD and short-term peak treatment capacity of 239 MGD, extended wet weather flows as high as 250 MGD are not uncommon. The smaller West Bank secondary treatment facility is a 10 MGD trickling filter plant which is being expanded to double its capacity.

The S&WB has had difficulty meeting NPDES permit requirements which resulted in several violations. These violations, prior to privatization, continue to be the subject of litigation between the city, and US EPA and the U.S. Department of Justice.

Procurement/Competition: All research was performed in-house. Beginning in early 1991, the S&WB conducted a ten-month study of contract operations, which included tours of other privately-operated facilities. The study projected that besides achieving permit compliance, annual operating savings of $750,000 were possible under a service contract due to improved worker productivity. The main opponent of the contract was the City Civil Service Commission who make decisions on City employee matters. Agreement was achieved when PSG offered to give the plant's 52 employees better pay and benefits and a two-year job guarantee. Furthermore, employees could choose to remain with the S&WB. Although not quantified by the City, the procurement process probably cost less than $ 100,000, since outside advisors were not used.

Proposer Selected: PSG was selected from a short-list of three firms based on cost, operating experience, technical resources, employee training and development programs, safety programs,

NEW ORLEANS, LOUISIANA

computerized process controls, and procedures for the transition from public to private operations. This contract represents one of the largest OM&M wastewater operations contracts in the nation. PSG assumed OM&M responsibility for the facilities on January 10, 1992.

PSG has established regular reporting mechanisms to provide S&WB management with current information on plant operations. The service contract has been structured so that the responsibility for making all capital improvements and maintenance of items costing greater than $5,000 (or having a service life of over three years) rests with the S&WB. PSG is responsible for all routine maintenance and repair. The contractor's operations remain under the scrutiny of the same regulatory bodies as the S&WB's operations. The S&WB has retained the NPDES responsibilities with the EPA. Any fines resulting from violations under contract operations are the liability of PSG.

Benefits: PSG has achieved operational savings of $1.1 million annually since 1991 and savings are expected to grow in future years. Rates have not been increased since 1987, remaining flat despite the cost savings achieved by privatization. Private operations have provided improved wages and productivity incentives for employees, as well as extensive employee training programs.

PSG set up a preventive maintenance program and a comprehensive odor control plan and did a complete evaluation of the plants on assuming operational control. PSG directed the rehabilitation of a 70 tpd cryogenic plant which had been inoperable for years and restored inoperable 40 tpd and 20 tpd incinerators, whose failure had resulted in numerous compliance violations. Plant discharge quality has been improved. Increased incinerator capacity has cut solids inventory, fecal coliform in the effluent has been reduced because of the rehabilitation of the chlorination system.

Drawbacks: The S&WB believes it was a mistake to sign a five-year contract, renewable for only one-year periods. It believes that a longer-term provider has more financial exposure and thus more incentive to work harder and increase efficiencies. Although the S&WB and PSG have excellent relations, disagreements occur over who should bear certain costs.

Lessons Learned: The key to a successful privatization is having a well-defined contract with a reputable firm. The contracting government should make sure that the term "maintenance" is well-defined in the contract, as well as who will pay for each type of maintenance. This will prevent any arm-wrestling matches during the contract period.

Reference for Further Information: Don Crowder, S&WB Liaison, Sewerage and Water Board of New Orleans, 625 Saint Joseph Street, New Orleans, LA 70625. Telephone Number: 504-585-2271 or 585-2272. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

NORTH BRUNSWICK TOWNSHIP, NEW JERSEY
(Concession Operations)

Description: The first US publicly-procured, long-term concession contract for the operation of a water and sewer system was signed in February 1996 by North Brunswick Township (the Township) and US Water Inc. The treatment plant had been run by US Water under contract for ten years prior to the concession agreement. This concession contract was the first application of two New Jersey State laws: the New Jersey Wastewater Treatment Public-Private Contracting Act and the New Jersey Water Supply Public-Private Contracting Act. Under the terms of the concession, US Water will operate, maintain, and manage the systems for 20 years. The Township retains ownership of the facilities and its rate-setting ability.

Demographics: The facilities serve the Township of North Brunswick, population 35,000, and an additional 200 surrounding residences. The number of customers served is about 12,000, consisting of 70% residential, 15% commercial, and 15% industrial. The Township is located in Middlesex County, New Jersey. The economic base of the region includes manufacturing and pharmaceutical companies. The area has steady population growth of about 1/2% per year .

The water treatment plant has a capacity of 10.0 million gallons per day (MGD). Average flows are 4.0 to 5.0 MGD. The Township has a contract with the New Jersey Water Supply Authority to draw 8.0 MGD. The plant is only four years old, but some of the pumping stations and lines are 50 to 60 years old. The Township has experienced minor violations of New Jersey Water Supply Authority and Department of Environmental Protection regulations.

Procurement/Competition: The Township wanted to find a less expensive way to operate the facility, and to relieve itself of billing and collection, customer service, and other responsibilities related to operating the facility, but still retain ownership and control rate-setting. The Township also wanted to improve its balance sheet by decreasing its outstanding debt. A blue ribbon panel comprised of Town Council members and the mayor was organized in the fall of 1994 to study the available options. A combined RFQ/RAP was issued in February 1995 and proposals were due May 1995.

The procurement process was delayed while the Township waited for two New Jersey public-private contracting acts to become law. This innovative new legislation allows payment of concession fees to a municipality. These fees may be paid either up-front, annually, or as a municipality desires. They must be used to reduce or offset property taxes, service rates, nonrecurring expenses, or capital asset expenditures. The laws permit a wide range of contractual forms to meet municipal needs. Competitive procurement is required, and asset sales prohibited. When both acts were finally passed, the Township issued an amended RAP, providing bidders with the opportunity to re-propose based on the passage of these two new laws.

NORTH BRUNSWICK TOWNSHIP, NEW JERSEY

The Township began negotiations with US Water in September of 1995. US Water agreed to hire all six current employees for at least two years. At the end of two years, the employees would either be offered a permanent job with US Water or offered a job with the Township. The Township invested approximately $400,000 in the privatization process. The entire process took one year. The decision to privatize was not an issue since the facility was already being operated under a contract with US Water. This contract was a win-win-win public-private partnership for the taxpayers and utility users, the employees and the private firm.

Proposer Selected: US Water was selected for economic reasons, as well as its experience and expertise in operating the plant. Under the terms of the partnership, US Water operates, maintains and manages both the water and wastewater systems for a twenty-year period, including the distribution and collection systems, billing and collection, and customer service. The Township still owns the facilities, sets rates, and is responsible for capital improvements. The Township does not participate in day-to-day operations, but does oversee the operations and perform annual inspections. US Water must comply with all State and federal standards and pay any fines assessed for violations. The firm must also meet set requirements for repairs and maintenance, as well as customer service.

Benefits: The Township estimates savings of $46 million over the 20-year period. US Water estimated rates for the next 20 years based on their annual fee, with the first year's rates increasing 5.75% over the previous year's, and eventually increasing 3.0% in the latter years of the contract. The cost of operations by US Water was significantly less expensive than Township operations. As a result of the concession, $23 million of Township debt was deceased by US Water, an initial concession payment of $6 million was made to the Township, and royalties of $22.9 million will be paid to the Township over the 20 years of the contract. The system-wide replacement of all water meters was included in the contract as part of US Water's responsibilities.

Lessons Learned: The main questions to ask are: “What is the objective of the municipality?” and "Can this objective be achieved through private operations?" In the case of North Brunswick, the Township wanted to be relieved of all utility requirements, to improve its balance sheet, and to have some budget relief. Because of these goals, the Township took a long-term view.

Reference for Further Information: Paul Keller, Business Administrator, North Brunswick Township. Telephone Number: 908-247-0922 extension 435. EFAB Case Study, EFAB Member George Raftelis, Inc., 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

OKLAHOMA CITY, OKLAHOMA
(Contract Operations)

Description: In 1988, the Oklahoma City Water Utilities Trust (OCWUT), contracted out the operations, maintenance, and management of three wastewater treatment facilities, a pumping station, and all sludge disposal services to Professional Services Group (PSG). Prior contracting with PSG, operations and maintenance duties at two wastewater treatment facilities been performed by two separate companies, while operations at the third had been carried out by City employees. Sludge disposal for each facility had been performed by another company under three separate contracts. This independent structure of operations, maintenance, and sludge removal activities was an unnecessary and expensive duplication of operations, equipment, and personnel. The incorporation of all the facilities into contract operations by PSG has created savings of about 11 % annually for OCWUT.

Demographics: The three wastewater treatment facilities receive mostly domestic waste from about 600,000 residents, as well as process waste from light industries in the service area. The facilities serve a 530 square mile area in and around Oklahoma City (City). In addition to its retail, residential, commercial, institutional, and industrial customers, the City has wholesale contracts with surrounding municipalities, the local Air Force base, and General Motors.

The North Canadian plant has an design capacity of 80 million gallons per day (MGD), and the Deer Creek and Chisholm Creek plants have design capacities of 10 MGD and 5 MGD, respectively. Collectively, the three plants generate about 23,500 tons of sludge per year. The North Canadian plant has primary and secondary treatment processes, as well as chemical scrubbers and a hydrogen peroxide injection system. The Witcher Pumping Complex has two large lift stations and three aeration wastewater storage lagoons. The Deer Creek plant is a rotating biological contractor plant for secondary treatment followed by nitrification and chlorination. Finally, the Chisholm Creek plant has primary, secondary, and advanced treatment prior to discharge.

Procurement/Competition: The City wanted the contract to lower costs. In 1987, the City's wastewater treatment cost about twice what other Oklahoma municipalities were paying on a per unit basis. The Water and Wastewater Utilities Department conducted the procurement. The assistant city manager had an engineering background and easily explained the process and projected results to the City Council. Employment of existing employees was a condition of the RFP. In 1987, the City put sludge management, disposal services and operations of all the facilities up for competition. The RFP directed prospective firms to identify operational changes and/or capital improvements to ensure maximum efficiency and to lower costs. This provision allowed for innovative techniques in sludge processing and disposal. The entire process took about a year, and cost less than $100,000.

OKLAHOMA CITY, OKLAHOMA

Proposer Selected: PSG was chosen for having the lowest costs as a result of the capital improvements and operational changes contained in their proposal. The contract was progressive for its time, since most contract operations agreements for wastewater treatment plants were for operation of the plant "as is." In this case, the agreement permits operational changes and capital improvements to ensure the most efficient and cost-effective operation of the facilities.

Under the contract, the City owns the facilities, but PSG is responsible for operating the three plants, their effluent quality, and paying any fines for compliance violations. The City's Water and Wastewater Utilities Department employs three people to oversee the private operations by looking after the plant and making routine inspections. The operations are subject to regulations and checks by the EPA, the State Department of Environmental Health, and the City-County Health Department.

PSG offered equal salary and benefits to all plant employees. In the first year, the firm conducted intensive training. Many employees attended a local college to prepare for certification, with tuition reimbursed by PSG. Employees who did not choose to work for PSG could remain with the City.

Benefits: In the first year, the City saved about $4.5 million. The City has been saving about 11 % per year over projections due to capital improvements and operational changes from privatization. After three years, the contract was renewed for five years, and will be eligible for renewal again next year. PSG's annual fee is $10.3 million, which is lower than the 1987 cost of OCWUT operations.
Wastewater rates have not increased since October 1983. From 1989 to 1993, a 4% annual decrease in rates occurred due to savings achieved by private operations. Since the last decrease, the City has used the savings from privatization to make improvements in the system instead of lowering rates. The City is considering rate increases of 3 % per year for three years beginning in October 1996.

A post-dewatered lime stabilization process has reduced energy consumption for sludge processing. The largest reduction has been a decrease in transportation costs. Previously, 6,500 gallon tankers carried 60 to 65 loads of sludge per day, seven days a week to application sites. After increasing the sludge solids content, truckloads have been decreased to 18 to 20 per day, five days a week.

Lessons Learned: The City did not anticipate how large a role it would need to play in supervising the contract operations. The City now has three employees dedicated to the oversight of the facilities.

Reference for Further Information: James Couch, Director of Utilities, Oklahoma City Water Utilities Trust. Phone: 405-232-6238. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

PHILADELPHIA, PENNSYLVANIA
(Contract Operations)

Description: The City of Philadelphia Water Department (PWD) owns and operates one of the largest centralized biosolids processing facilities in the country, the Biosolids Recycling Center (BRC). In the late 1980's, the BRC faced numerous problems, including: high operations costs, low productivity, community distrust, extremely high overtime expenditures, labor unrest, improper equipment, and most importantly, a consent decree imposed by the State of Pennsylvania for the removal of stockpiled products from unpermitted areas. The BRC was also the target of unfavorable union action and media attention during protracted municipal union negotiations in the summer of 1992. This combination of factors made the BRC a candidate for privatization.

After a new city administration settled the union contract, it set a goal to reduce operating costs at the BRC by $5 million (about one-fifth), and retained the engineering firm of Camp, Dresser & McKee (CDM) to evaluate the BRC and estimate the cost of operations under private management. Contract operations was presumed the only viable option available to the city to achieve the cost savings goal. While no specific assurance was given, the BRC managers believed a challenge had been presented to them to accomplish a successful turn-around, concurrent with the CDM study, which might thereby dissuade officials from proceeding with contract operations.

Demographics: The BRC provides the dewatering and composting processes for two regional wastewater plants which serve about 487,000 accounts (2.3 million people). The PWD provides sludge disposal services via the BRC to the City of Philadelphia and ten counties, townships, and/ or authorities in the surrounding area. The BRC processes liquid sludge from the two regional wastewater facilities and distributes the processed biosolids product to contractors for disposal.

The BRC consists of a centralized biosolids dewatering station and a 72 acre biosolids composting plant. In October 1993, the BRC handled about 15.5 million gallons per week of digested and thickened sludge. A consent decree was imposed on the PWD by the Pennsylvania Department of Environmental Resources for the removal of stockpiled products from unpermitted areas.

Procurement/Competition: The City retained Camp, Dresser & McKee to evaluate the facilities and estimate the cost to operate the plants under private management. The study estimated that contract operations of the BRC would yield annual savings of $6 million to $8 million over current city operations. The City issued an RFQ in October 1993 to begin the privatization process.

PHILADELPHIA, PENNSYLVANIA

Meanwhile, BRC managers made vigorous changes at the facility, focusing on meeting self-imposed "expense goals". Management reduced staffing and funding levels. Staffing for biosolids management fell from 235 positions in 1993 to 133 positions in 1996, a reduction of over 40%. The cost of biosolids processing was cut from $21 million in 1992 to $9.8 million in 1995. Starting from December 1993, the BRC operating budget was decreased from $30.6 million to $15.7 million between 1993 and 1995.

The American Federation of State, County, and Municipal Employees negotiated with PWD management to ensure that no layoffs occurred. In turn, PWD management worked closely with them to develop a strategy for moving employees within the department. Although some employees were placed in lesser positions, no one was unemployed as a result of the changes.

Proposer Selected: The PWD management succeeded in meeting the challenge, and the City halted the privatization process.

Benefits: The BRC rates are set by the PWD for the entire department and are fixed for long periods of time. Rates have not been reduced as a result of cost savings; however, they are not expected to be increased until after the turn of the century. Customer service became the focus for the BRC's operational improvements.

Management modernized the dewatering equipment by replacing eddy current back drives and installing automatic torque control which removed the need for "hands-on" operation and improved the consistency of equipment performance. Vehicular equipment was reassigned to upgrade the BRC's capacity for materials handling, and production of screened compost was reduced from two shifts to one shift of operation as a result of a better coordinated screening system.

Lessons Learned: Municipal operations, even those with a tradition of union activism and strong work rules, present an opportunity for positive change. Sound data and clear operational objectives can set the stage for positive change in municipal operations. A city can realize large financial benefits in changing a municipal operation, and the potential savings can be of a magnitude meeting or exceeding the projected financial benefits of privatization.

Reference for Further Information: Guru P. Bose, Manager of Wastewater Operations, City of Philadelphia Water Department, ARA Tower, 1101 Market Street, Philadelphia, PA 19107. Telephone Number: 215-685-6250. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

WEST NEW YORK, NEW JERSEY
(Contract Operations)

Description: In the fall of 1994, the West New York Municipal Utility Authority (MUA) issued a Request For Qualifications (RFQ) for the purchase or lease of its wastewater treatment facility. In early 1995, the MUA issued a Request For Proposals (RFP), and three proposals from private parties were received by June 1995. Concurrent with receipt of the proposals, a new mayor and city administration were elected, creating the need to familiarize the new administration with privatization.

In addition to these political changes, a nearby wastewater authority, the TriCities Authority, expressed interest in buying the assets of the MUA soon after the private proposals had been received. This interest created a new dynamic, since the issues involved in a sale to another public entity differ from those in a sale to a private party. This opportunity has created new possibilities for the MUA not contemplated earlier and has delayed the procurement process for over a year.

The West New York (Town) is still in the process of deciding whether to sell to a public authority or a private contractor. The decision of which privatizer to choose would obviously have to come after this decision is made. The Town wants to put the privatization process officially on hold, so that if the decision is made to sell to the private sector, no backtracking will be necessary.

Demographics: West New York, NJ is located a few miles from Bergen County. The area's economy is composed of service-oriented companies. The MUA serves a population of 60,000 and has 4,900 customer accounts. The MUA serves primarily retail customers in West New York, but also serves portions of Union City and Weehawken as wholesale customers. It operates a 10 million gallons per day (MGD) wastewater treatment facility.

Procurement/Competition: The MUA is having trouble managing the debt service generated from capital investment. The Town Council and the MUA Board are involved in the privatization process. CME Associates are the consulting engineers; Natwest is the financial advisor; and DeCotiss, Fitzpatrick & Gluck are legal counsel for the MUA.

The MUA received three private proposals in June 1995 to purchase the facility, and as of July 1996, the proposals were still being considered. The potential still exists for the procurement process to be put on hold so the MUA can consider another option, the possibility of merging with or selling its assets to another public authority. If the MUA decides on full privatization, it will retain some control over its facility through a service agreement with the privatizer. If the MUA decides to sell to the Tri-Cities Authority, it will not be responsible for any aspects of the wastewater treatment facility, nor will it have any control over operations or rates.

WEST NEW YORK, NEW JERSEY

Proposer Selected: No proposer has been selected yet. The MUA has been considering privatization for approximately two years as of June 1996. As of July 1996, US Water, Inc. and American Anglian Environmental Technologies, Inc. are the only two contractors that remain in the competition.

Lessons Learned: Economic and political factors which may affect the privatization process are really very case specific. The election of a new mayor and the purchase offer from a public authority have hindered the privatization process in West New York.

Reference for Further Information: Arnold Mitnaul, Executive Director, West New York Municipal Utility Authority, West New York, NJ. Telephone Number: 201-295-5240. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Telephone Number: 704-556-1936. Fax Number: 704-556-1937.

WILMINGTON, DELAWARE
(Asset Sale /Privatization)

Description: In the fall of 1994, the City of Wilmington (City) began investigating the economic benefits of privatizing the operation of its wastewater treatment plant. Two options were evaluated initially: (1) leasing the plant to a private operator and (2) the sale of plant assets to a private owner/operator with a 20-year operations contract. Under the guidelines established by Presidential Executive Orders 12803 and 12893, the City sought a substantial up-front payment by the privatizer to be amortized over the contract. After completing an elaborate procurement process to select a preferred privatizer, the project was delayed due to concerns raised by New Castle County (County).

Demographics: The City and surrounding County includes large professional group and industrial presences with almost all growth occurring in the County. The plant, located in the City, serves about 460,000 people. The City generates 30% of flows to the plant and New Castle County 70%. The City provides wholesales wastewater service to the County. Their relationship is governed by an interjurisdictional service agreement which sets the method used to allocate costs to the County.
The plant has a rated capacity to treat 90 million gallons per day (MGD) and is operating at capacity. It provides tertiary treatment of wastewater to meet stringent requirements before release into the Delaware River. The plant has maintained general compliance with environmental regulations, with the exception of some problems related to high flows to the plant during wet periods.

Procurement/Competition: The City expressed three main objectives in privatizing the facility: controlling operating costs; ensuring rate stability; and generating a cash infusion for the City to meet other needs. The privatization option, including the sale of the plant assets with a 20-year operations contract, was the most effective method to achieve these goals. Other objectives included acceptable rate impacts to all customers, preserving the City's capital investment to assure long-term plant reliability and performance, and gaining help in meeting future capital expenditures objectives.

The feasibility study to determine the economic benefits of privatization and the preferred option began in the fall of 1994. The decision to move with privatization came in January 1995, and RFP work began in March 1995. The RFP was issued in early May, with technical proposals due in late June, and cost proposals due by July 21. The proposal evaluation process, including requests for clarification and interviews, took about six weeks, with the notice of rankings issued in late August.

The evaluation was conducted by a City review committee and utility advisors based upon a matrix that included: corporate profile; corporate experience and expertise; regulatory experience; key management and operational personnel; financial strength; employee considerations; references and reputation; use of Disadvantaged Business Enterprises and EEO compliance; and proposal completeness and responsiveness.

WILMINGTON, DELAWARE

Cost proposals were submitted separately from technical proposals, as required by City policies, and were not used in evaluating and ranking submittals. Proposers were scored and ranked solely on the basis of technical proposals. Cost proposals were used for developing a cost basis for negotiating a Service Contract and Service Fee with the preferred vendor. The most qualified privatizer was selected at least cost. The process was challenged in court, but the City won. The cost for project feasibility studies, procurement services, negotiation, and implementation ran $300,000 to $400,000.

Proposer Selected: Wheelabrator EOS (WEOS) was the preferred vendor based on the evaluation. As plant owner, WEOS would maintain all local, State, regional, and federal permits. Since WEOS would not directly deal with customers, it was not expected that the plant would be regulated by the Delaware Public Service Commission. If full privatization included the purchase of plant assets and repayment of federal grants, it was expected that approvals would be required from the State, USEPA Region III, USEPA headquarters, and the federal Office of Management and Budget. The need for regional and federal approvals under a long-term lease privatization was also investigated.

Contract negotiations with WEOS began shortly thereafter and were to have been completed by the end of 1995, with a scheduled project start date of January 1, 1996. However, the County did not approve of the project and voiced significant concerns that the City was going to receive a substantial financial windfall that County customers would pay for in the form of higher rates. Even after it was shown that privatization would benefit all customers, the County believed that it had an "equity position" in the assets and should share in the up-front cash benefits. Disagreement over this issue is the primary reason the privatization initiative failed. However, negotiations are underway between the City, County, and Wheelabrator EOS to develop an acceptable privatization scenario meeting the objectives of all parties, which will likely be a service contract with a 4 to 20 year term.

Benefits: No benefits have yet been realized.

Lessons Learned: All major users or stakeholders should be included in the privatization process from the beginning. Personnel involved in operating facilities to be privatized should be excluded from the process. It is essential to review, understand, and seek clarifications where needed, on any laws, regulations, or guidelines that may affect the procurement, evaluation, selection, or negotiation process. Rigorous compliance with all rules and guidelines is essential to avoid legal challenges. It is important to keep State environmental agencies informed during the privatization process.

Reference for Further Information: Mr. Kash Srinivasan, Water Division Director, City of Wilmington, Louis L. Redding Building, 800 French Street, Wilmington, DE 19801. EFAB Member George Raftelis, 6100 Fairview Tower, Suite 615, Charlotte, NC 28210. Phone: 704-556-1936. Fax Number: 704-556-1937.

WIXOM, MICHIGAN
(Contract Operations)

Description: Dissatisfied with its lessor/public operator, the Oakland County Department of Public Works (OCDPW), the City of Wixom (City) began to investigate the process for contracting the operation and maintenance of its wastewater treatment facility in 1990. The study revealed that savings and improvements could be achieved through private operations and maintenance of the facility. After a lengthy procurement competition and the City's decision to acquire the facility, a private operator was engaged and savings realized.

Demographics: The water distribution system consists of 7 separate systems, 19 wells, 15 miles of water mains with 767 connections. The system has a capacity of 16 million gallons per day (MGD), which is about the level of current use. The wastewater treatment plant is a 5 MGD facility serving 1,620 customers. Of the 5 MGD capacity, 1.5 is used and half of the unused capacity is dedicated, by agreement, to Ford Motor Company.

The wastewater treatment plant was the subject of environmental permitting violations which resulted in a consent order. As a result, the state-of-the-art facility which presently services the community was built. The facility has an oxidation ditch activated sludge process with a chemical phosphorus removal system, and tertiary filtration and ultraviolet disinfection and aerobic digestive system to handle solids with sludge storage (1.7 million gallons) for possible land application.

Procurement/Competition: The City was dissatisfied with the cost, communications and control that they were experiencing with their lessor/operator, the OCDPW. They wanted to become the owner of the wastewater facility and contract operations and maintenance of the water and wastewater systems to a private operator. Consensus was achieved by constant review and attention to the process by the city council, city manager, treasurer, and public works manager. The matter was discussed openly at council meetings and community input solicited.

The Michigan Department of Natural Resources and USEPA became involved regarding dismissal of the consent order. This dismissal was required for transfer of ownership of the plant from OCDPW to the City of Wixom. Advice from the DNR and EPA was also sought as to whether the privatizer/operator could operate both the waste facility and the industrial pretreatment program for Ford Motor Company.

The procurement process cost about $100,000 incurred over three years. A portion of the cost was recouped through a charge of $2,000 from each of the five proposers and as a result of lower interest costs on the bonds subsequently issued for the purchase of the wastewater plant.

WIXOM, MICHIGAN

Proposer Selected: Williams and Works (now Earth Tec) was selected in the spring of 1994 after a competitive request for proposal process, answers to written questions, and personal interviews with three of the most competitive proposers (including OCDPW). They had superior technology and innovative ideas; and they provided additional services not included in the OCDPW proposal. Earth Tec received a five year contract to operate the wastewater which limited price adjustments to changes in flow or content, Consumer Price Index fluctuations, and other escalators. It withdrew from its previous testing and services role in Ford Motor Company's pretreatment program. The City decided to payoff the County bonds and acquire ownership of the wastewater facility.

Labor was addressed in an agreement that OCDPW employees could apply for employment at Earth Tec, OCDPW provided an early retirement program, and reassignment was offered to other positions in the Oakland County system. All issues were openly discussed and resolved without cost to the City of Wixom. Labor issues caused no delays in the project, and there were no layoffs.

Benefits: The community saved about ten percent or $100,000 in the first year of operation and received additional programs and services. The City was impressed with the increased level of information provided by the private operator, including more timely cost and budgetary data. The City believes it is more knowledgeable about wastewater operations and has better information with which to develop its budget and conduct long term planning. The privatization process informed the City, its people, elected officials, and management on the value of analyzing the quality of functions run by government agencies and on the benefits of public-private partnerships.

Drawbacks: The process was lengthy and time consuming, especially for the owner's personnel. It also required an up front commitment of funds to get through the process.

Lessons Learned: Politics are always a factor in anything that involves major change from former municipal ownership and operations. The political process requires patience, flexibility and the ability to fund necessary experts and consultants. Public owners and operators will not give up control until the full administrative/political process has been used and all options carefully explored. It is essential to engage experts early in the process and include them in the review team analyzing proposals and drafting contracts. The city council must be committed to the project and involved in the process. A strong administrative leadership team (city manager, treasurer, and director of Public Works) is essential for a project to remain focused.

Reference for Further Information: Mr. J Michael Dornan, City Manager, City of Wixom, 49045 Pontiac Trail, PO Box 155 Wixon, MI 48393-0155. David M. Lick, Partner, Loomis, Ewert, Ederer, Parsley, Davis & Gotting, P.C., 232 South Capitol Avenue, Suite 1000, Lansing, MI 48933. Telephone Number: 517-482-2400. Fax Number: 517-482-6604.

OTHER

Description:

Demographics:

Procurement/Competition:

Proposer Selected:

Benefits:

Lessons Learned:

Reference for Further Information:

5. TOOLS

FOR

DELIVERING

FINANCIAL

OUTREACH

5. TOOLS FOR DELIVERING FINANCIAL OUTREACH

INTRODUCTION

Financial outreach and technical assistance at the State and local level can be vital to the success of environmental programs. The outreach tools described in this section are different from direct governmental assistance, such as financial assistance, and traditionally have been offered by a range of non-profit and private sector organizations as well as some governments. Outreach can be very important for environmental programs because of the multiplicity and complexity of constantly changing environmental regulations, both federal and State, and the need to finance, operate, improve or construct facilities to comply with these regulations. Financial outreach is increasingly important because of the growing cost of environmental facilities, programs, and activities. This is particularly true for small community environmental projects because this kind of outreach has not been readily provided by the federal government, and can be a critical link between environmental mandates and implementation of these mandates by local managers in the field.

Two types of financial outreach are presented in this section: **institutional arrangements and electronic services.** Institutional outreach arrangements are provided by organizations, initiatives and mechanisms that provide information, advice and hands-on training on how to finance environmental facilities and implement new programs. Institutional outreach traditionally has been provided by non-profit groups and private associations, such as universities, professional associations, trade organizations, and advisory panels.

However, many States are now providing more financial and technical assistance to communities, especially small ones, in connection with their State Revolving Fund (SRF) Programs for financing clean water and drinking water activities. For example, capacity development assistance in the context of a State capacity development plan is mandated under the Drinking Water SRF program. SRF self-help type outreach also is increasing in a number of States.

Electronic outreach is achieved through computers and electronic technology such as telephone, fax and video links. These electronic services represent one of the fastest growing forms of access and data sharing. They can be a prompt and highly cost-effective method of financial outreach, provided that potential users have adequate access to them. These services can be highly beneficial to even large, sophisticated public and private entities.

5.A. INSTITUTIONAL ARRANGEMENTS

5.A. INSTITUTIONAL ARRANGEMENTS

Description: The term institutional arrangement as used in the context of financial outreach and technical assistance includes organizations, initiatives, and mechanisms that support and facilitate the financing and implementation of sustainable environmental programs, systems, and projects by all levels of government, as well as the private sector and individuals. Such arrangements can range from non-profit environmental and service associations to university-based technical assistance networks, government advisory or ad hoc groups, and State capacity development assistance programs. All arrangements, however, must promote the exchange of information and technical assistance on sustainable ways to pay for the myriad of environmental activities undertaken by regulated entities, public and private.

Advantages: Institutional arrangements have some distinct advantages over direct governmental assistance approaches. Since there are so many types of arrangements, there is a likelihood that one or more can be found to help meet the financing needs of any regulated entity. Theses arrangements tend to be independent, innovative, and non-bureaucratic in nature. They often provide help to clients more easily, faster, and at lower costs. They typically involve face-to-face, hands-on training, and are project specific. They also may require significant client involvement ranging from detailed feedback and cooperation to direct project participation and funding. As a result, the outreach and technical assistance provided is of extremely high quality and may be highly financially leveraged.

The very nature of institutional outreach arrangements presumes a close interaction with client groups. Consequently, such arrangements often have, or come to have, a high degree of credibility and standing with clients. They can also often develop over time a considerable body and degree of technical expertise in a relatively focused area, such as finance, which can be replicated in other locations. Furthermore, since they are not regulatory in nature and operate more informally, client groups often develop and maintain a higher level of comfort with them than they do with federal and State government agencies and approaches.

Limitations: Institutional arrangements are not typically themselves a source of funds, with the exception of the State Revolving Fund Self-Help and Drinking Water Financial Assistance programs that some States have for smaller, disadvantaged communities. However, many efforts may serve as pass-through entities funneling money to assistance recipients (in demonstrations or pilots). Outreach , assistance, and direction provided to clients via these arrangements may be rejected by State or federal regulatory agencies. Care must be taken when designing and establishing these arrangements to give clear guidelines on requirements, responsibilities, and authorities with clients and governments, or the organization may not be able to carry out its mission effectively.

Summary: The fourteen types of institutional outreach arrangements presented here are hardly exhaustive. Many other kinds and sources of outreach and technical assistance exist. Some arrangements/techniques are quite informal and ad hoc, for example, pro bono legal services, business panels and forums, and the like. The mechanisms presented here are arranged or supported more formally by governments, such as the eight university-based Environmental Finance Centers (EFCs). Reader suggestions for additional types of outreach arrangements are not only welcome, but actively encouraged and solicited.

LIST OF INSTITUTIONAL ARRANGEMENTS
(In Alphabetical Order)

1. Border Environmental Cooperation Commission
2. Circuit Riders
3. Cooperatives
*4. Cooperative Extension Systems
*5. Drinking Water SRF Capacity Development
*6. Environmental Finance Center (EFC) Network
7. Region 6 EFC at the University of New Mexico
8. Region 3 EFC at the University of Maryland
9. Region 2 EFC at the Maxwell School, Syracuse University
10. Region 9 EFC at California State University at Hayward
11. Region 5 EFC at Cleveland State University
12. Region 10 EFC at Boise State University
13. Region 4 EFC at the University of North Carolina
14. Region 4 EFC at the University of Louisville
*15. EPA: Environmental Finance Program
16. EPA: Environmental Financial Advisory Board
*17. Finance Charrettes
*18. National Technical Assistance Programs (Non-profit)
19. Retired Volunteers
*20. Rural Community Assistance Corporation
*21. Self-Help
*22. West Virginia University Environmental Services and Training Division

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

BORDER ENVIRONMENTAL COOPERATION COMMISSION

Description: The Border Environmental Cooperation Commission (BECC) was created within the context of the North American Free Trade Agreement process and is a sister agency to the North American Development Bank (NADBank). The BECC reviews proposals for environmental projects in the region along the US-Mexico border region and certifies them for loan funding by the NADBank (see **Section 2.B., North American Development Bank**). The purpose of the BECC is to help preserve, protect, and enhance the environment of the border region in order to advance the well-being of the region's residents and to achieve sustainable development. Environmental areas to be emphasized by the BECC include municipal solid waste management, wastewater treatment, and the supply of potable water.

Actual Use: Before the BECC certifies a project for funding by the NADBank, criteria in the following six categories must be satisfied: 1) general project description; 2) environmental and human health; 3) technical feasibility; 4) financial feasibility and program management; 5) community participation; and 6) sustainable development. By mid-year 1998, the BECC had certified twenty-five projects for funding in a range of environmental areas including water supply, wastewater treatment, regional landfills, water/wastewater facilities maintenance, and a surface water cleanup study.

Potential Use: Growing trade and population has increased stress along the border region between the US and Mexico. The lack of adequate environmental and other infrastructure to handle rising population and traffic has led to additional municipal, environmental and public health, transportation, and educational needs. The growth potential for BECC approved environmental infrastructure projects is very significant.

Advantages: Both the BECC and the NADBank have a strong private sector orientation. Private financial institutions and firms play a key role in financing, building, operating, and maintaining the infrastructure. Because of the strong private sector orientation, employment along the border and equipment suppliers have benefitted from increased economic development.

Limitations: Projects that require grants or equity funding are not considered for certification by the BECC. There is considerable concern that border communities may not be able to repay loans of any kind. All projects certified by the BECC and funded by NADBank must address environmental issues within 100 kilometers of the US-Mexico border.

Reference for Further Information: Border Environmental Cooperation Commission (BECC), Post Office Box 221648, El Paso, Texas 79913, E-Mail: **becc@cocef.interjuarez.com**.

CIRCUIT RIDERS

Description: A circuit rider is a dedicated expert who travels on some established regular basis to a number of participating individuals and organizations to provide hands-on technical assistance, professional services, and education. The circuit rider can be either an independent entrepreneur contracting with the participants individually or as a group, or an employee of the participant group acting cooperatively. Furthermore, the circuit rider can work either a full or part-time depending on the number of systems participating and the assistance and services provided.

For example, several publicly or privately owned water or other environmental systems may agree to jointly obtain administrative, management, technical, or other services from a common source to meet their common needs. The common source, the circuit rider, addresses the common need such as the collection of samples from each system and delivery of the batch to a lab for testing.

Actual Use: Cooperatives in many fields use circuit riders to obtain specialized goods and services. State government agencies in fields such as education, the environment, transportation, and small business development use the circuit rider approach to provide technical assistance to small, often rural, communities and businesses. Ohio's T2 Center Circuit Rider program is a good example of a transportation-based effort. AmeriCorps' programs make significant use of circuit riders in implementing their varied activities.

Potential Use: There is high potential for use of circuit riders by smaller environmental systems in areas such as mobile home trailer parks. For many of these systems, circuit riders are a good way to overcome their geographical dispersion and individual inability to afford technical assistance. These same systems are also good candidates for membership in cooperatives.

Advantages: The circuit rider approach is a cost-effective way for smaller environmental systems to be able to afford technical assistance. The pooling of their business needs lets the individual systems negotiate lower overall rates with assistance providers by virtue of being part of a larger business opportunity.

Limitations: Circuit riders cannot be at every location all the time and may not be accessible in a timely manner during an emergency. The circuit rider may try to play one system off against another to negotiate a better deal. Small systems are often very independent.

Reference for Further Information: Ohio T2 Center Circuit Rider Program, Program Coordinator Mike Fitch, Telephone: 614-292-4988. National Association of Service and Conservation Corps (an AmeriCorps T/TA provider), Circuit Rider Program, Telephone: 202-737-6272.

COOPERATIVES

Description: A cooperative is an independent association of people and/or groups voluntary united to meet common needs through a jointly owned and democratically operated venture. For example, several publicly and/or privately owned environmental systems could agree to jointly share administrative, management and technical resources in providing common environmental services. The resulting cost savings would be either passed along to users, reinvested in the cooperative venture, or returned to the member systems.

Actual Use: Some limited numbers of water systems operate jointly in cooperatives. The Water Cooperative of Pierce County located in Washington State is a good example. This organization consists of several municipal and mutual utilities that provide water to almost a quarter million people. It has both an environmental and a legislative agenda. Nationally over 100 million people belong to 47,000 cooperatives. Cooperatives are set up to provide/receive just about any good or service including: business services, child care, financial services, employment, equipment and farm supplies, food and food services, health care, housing, insurance, legal and professional services, the marketing of agricultural and other products, and utilities. They are organized in one of three ways: producer-owned, consumer-owned or worker owned.

Potential Use: There is a high potential for using the cooperatives approach with smaller water, wastewater, and solid waste systems. Cooperatives also could also be very effective in helping implement community-based environmental programs. For example, agricultural cooperatives could promote with their members techniques to reduce fertilizer and pesticide runoff and use. Forming cooperatives to buy environmentally friendly products in bulk would reduce costs and encourage market expansion in the availability of such products.

Advantages: Cooperatives can reduce costs (sometimes dramatically) through the buying/selling power achieved through economies of scale. Cooperatives allow systems to pool not just their resources, but also their technical expertise and knowledge regarding outside sources of assistance.
Limitations: Cooperatives can be a challenge to start as their members are often very independent and used to operating in their own ways.

Reference for Further Information: U.S. Department of Agriculture, Rural Business-Cooperative Service, 14th & Independence Avenues, SW, Room. 5405-South Bldg, Washington, D.C. 20250, Web site: **http://www.rurdev.usda.gov/rbs/index.html**. Information is also available on the National Cooperatives Business Association web site at **http://www.cooperative.org**. The Pierce County Cooperative web site is **http://users.aol.com/waterguy3/waterworks.html**.

COOPERATIVE EXTENSION SYSTEMS

Description: Cooperative extension is a government-supported effort that attempts to link the university(ies) and citizens in each State, usually at the county level, using education and information as tools to help address real-world problems. Traditional areas in which the cooperative extension approach has been applied include agriculture and natural resources. The approach is increasingly being focused on environmental protection and topics such as sustainable development.

Actual Use: The Department of Agriculture's Cooperative State Research, Education, and Extension Service (CSREES) supports community-based environmental education efforts by the land-grant universities and the 57 State/territorial cooperative extension services, which employ over 9,600 local extension agents. The Smith-Lever and Renewable Resources Extension Acts provide formula grants supporting extension programs that promote community-based volunteer activities, collaborations among public and private institutions, and other delivery systems.

Since 1991, the Cooperative Extension Service at the University of Connecticut has provided information on non-point pollution sources and their links to land use. Farm*A*Syst and Home*A*
Syst (in 47 and 30 States, respectively) are voluntary, rural water pollution prevention programs run by the University of Wisconsin. In 1997, CSREES working with EPA, State extension services and others supported four pilot projects applying environmental education to sustainable development issues at the community level. These projects encourage community-based environmental education models, build the capacity of regional, State and community agencies to work via education institutions and systems, and improve the ability of communities to plan/implement development that integrates economic, environmental and social capacities.

Potential Use: If the four CSREES/EPA pilot projects produce workable models, or are extended to and embraced by other communities, the opportunities for environmentally sound, sustainable development projects could be increased.

Advantages: The program can integrate environmental thinking at all governmental levels.

Limitations: Funding for environmental education and technical assistance activities tends to be very limited. Some approaches have limited applicability.

Reference for Further Information: USDA, CSREES, Ag Box 2210, Aerospace Bldg, Rm 826, Washington, DC 20250, Phone: 202-401-6050, Fax: 202-401-1706, E-mail: gcrosby@ reeusda.gov, Internet: **www.reeusda.gov/**. NEMO, 1066 Saybrook Rd, Box 70, Haddam, CT 06438, Phone: 860-345-4511, Fax: 860-345-3357, Internet: **http://www.lib.uconn.edu/CANR/ces/nemo/**. Farm*A*Syst and Home*A*Syst, 550 Babcock Drive, Madison, WI 53706; Phone: 608-262-0024; E-mail: farmasyst@macc.wisc.edu; Internet: **www.wisc.edu/farmasyst/.**

DRINKING WATER SRF CAPACITY DEVELOPMENT

Description: "Capacity" is a term currently used to describe the technical, financial and managerial ability of public and private entities to administer vital services, in this case drinking water facilities.
The 1996 Safe Drinking Water Act authorizing the Drinking Water State Revolving Fund (DWSRF) requires States to prepare capacity development strategies for assessing and assisting adequate local capacity. All DWSRF local applicants must demonstrate that their water system has appropriate capacity to qualify for financial assistance. Since DWSRF's without strategies may lose up to 20 percent of federal capitalization grants beginning in the year 2000, and must use 15 percent of funds to finance water systems under 10,000 customers, local capacity now receives formal attention.

Actual Use: All States are focusing systematically on capacity development, primarily via State Departments of Health, DWSRF's and/or Self-Help programs, and are permitted to use 2% of DWSRF funds for technical assistance and up to 10% for program management including capacity development and operator certification. Technical capacity refers to engineering knowledge and operator skills. Financial capacity describes local revenue, income and cost issues, credit worthiness, and rate systems supporting drinking water facilities. Managerial capacity is the expertise of personnel administering overall water systems on a day-to-day basis and overseeing financial operations to ensure viability.

Potential Use: A number of important issues will be addressed as part of capacity development assistance for water systems, and such strategies are transferrable to other environmental facilities such as wastewater, solid waste and air pollution. These include a stronger focus on local affordability, including cumulative cost of all environmental services, facility operator training and certification, regionalization/consolidation of systems to achieve economies of scale, privatization alternatives such as contract management, and assessment of local environmental conditions such as adequacy of source water and comparative risk ranking.

Advantages: Adequate local capacity to design and administer pollution control projects on a long-term basis is the single most important factor influencing the success of money spent on environmental improvements. Small communities in particular can greatly benefit from capacity development assistance, which further may reduce costs. Systematic criteria such as for affordability can be extremely helpful in determining whether and what type of financial assistance is needed, and enables comparison of alternatives.

Limitations: there is no guarantee that localities needing improved capacity will receive assistance, as projects ranking highest on DWSRF priority lists and ready to proceed will be assisted first. The DWSRF capacity development set-aside decreases the total amount of DWSRF money available to make loans. SRF may find the specific federal compliance dates and set-asides onerous.

Reference for Further Information: The federal capacity development strategy is outlined in Section 1420 of the 1996 SDWA Amendments. Each State will develop and administer its own plan.

ENVIRONMENTAL FINANCE CENTER (EFC) NETWORK

Description: The EFC Network is a system of university-based regional centers that provides State and local governments and the private sector with educational, technical, and analytic assistance on environmental finance (see the following eight pages). Centers are located at: Syracuse University (Region 2); the University of Maryland (Region 3); Cleveland State University (Region 5); the University of New Mexico (Region 6); California State University at Hayward (Region 9); and Boise State University (Region 10). Prospective centers are located at the University of North Carolina (Region 4) and the University of Louisville (Region 4). Coordination of the EFC Network is assisted by the Environmental Protection Agency's (EPA's) Environmental Finance Program.

Actual Use: During the past several years, the Network has helped numerous communities across the nation. Network centers have held more than thirty conferences, meetings, workshops, and advisory panels with more than 1,000 State and local officials, and private parties covering a wide range of financing topics. These have included watershed management, brownfields redevelopment, drinking water and wastewater financial planning, stormwater runoff, environmental business opportunities, and solid waste management. Network centers have developed detailed training courses on innovative financing alternatives. They have also produced approximately fifty guidance documents, reports, articles, and models on these and other environmental financing topics.

Potential Use: The Network has the capacity to assist many more of the large numbers of State, local and private parties who need to identify and access suitable financing tools. It could grow without expanding by allowing individual Centers to set up satellite arrangements with other universities in its EPA Region. For example, the Cleveland State EFC in Ohio might link with institutions in Wisconsin, Minnesota, Illinois, etc., to work jointly on specific brownfields projects.

Advantages: Each EFC has its own environmental finance speciality(ies). The Network is highly leveraged in that it taps the expertise(s) of each, as well as the strengths of the universities at which they are located. Network centers are well distributed and well positioned around the country. By sharing information and serving as a clearinghouse, the Network is able to efficiently help States and localities nationwide identify and access suitable environmental financing approaches.

Limitations: The EFC Network and individual centers are generally not able to provide direct financial assistance for environmental activities to State and local governments and businesses. All fifty States are not yet covered by the program.

Reference for Further Information: U.S. EPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460, Mail Code: 2731R, Contact: Vera Hannigan at **hannigan.vera@.epa.gov**. EFC Network information can also be accessed via the Environmental Finance Program's home page on the World Wide Web located at **http://www.epa.gov/efinpage**

REGION 6 EFC at the UNIVERSITY of NEW MEXICO

Description: Established in 1992, the University of New Mexico Environmental Finance Center (UNM-EFC) is located at the New Mexico Engineering Research Institute. UNM-EFC provides technical assistance to federal, State, and local governments and focuses on public and private water systems. The Center seeks to identify viable financing options and promote low-cost, alternative, and appropriate technologies for environmental projects that strengthen the movement toward sustainable development. The UNM-EFC seeks to develop and implement affordable pollution prevention and source reduction approaches, when possible.

Actual Use: The UNM-EFC has aided New Mexico counties on the US-Mexico border with meeting environmental infrastructure needs by analyzing the feasibility of small regional water systems. The EFC has developed benchmark criteria as an assessment tool/methodology to evaluate the viability of small, rural water systems. The Center is providing assistance to New Mexico State agencies in developing and implementing a program to enhance resources available for small system capacity development. This work has provided a model for mobilizing water systems to better meet the small system capacity/viability requirements of the Safe Drinking Water Act.

Potential Use: The UNM-EFC is undertaking new projects in a variety of environmental areas and locations. These include brownfields site redevelopment projects, a small system rate structuring for the Texas Natural Resources Conservation Commission (TRNCC) using expert rate setting, impact fee, and financial planning computer software known as RateModPro™, municipal water conservation projects, and small system capacity development analysis for the Pueblo of Jemez, New Mexico and the TNRCC.

Advantages: The UNM-EFC participates fully in EPA's university-based Environmental Finance Center Network. Through its own expertise, the sharing of information and expertise between centers, and use of the Network as a clearinghouse on environmental financial issues, UNM-EFC is able to greatly leverage the technical assistance on environmental finance that it provides to Region 6 State and local governments.

Limitations: Although UNM-EFC identifies financing options and low-cost, alternative and appropriate technologies for environmental projects, the Center is not a funding resource.

Reference for Further Information: The University of New Mexico Environmental Finance Center, 901 University Blvd. SE, Albuquerque, NM 87106, Telephone: 505-272-7356, Fax: 505-272-7203. The UNM-EFC World Wide Web site is located at **http://nmeri.unm.edu/ta/efc.htm**.

REGION 3 EFC AT THE UNIVERSITY OF MARYLAND

Description: The Environmental Protection Agency (EPA)Environmental Finance Center (EFC) in Region 3 is part of the University of Maryland's Coastal and Environmental Policy Program. It is hosted by the Maryland Sea Grant College, and was created to train, provide assistance, and act as an advisor to State and local governments/private parties on environmental finance issues.

Actual Use: To help communities assess and analyze funding options for specific environmental projects, the EFC has staged over a dozen finance charrettes -- forums for frank discussions between local officials and technical/finance experts. Charrette issues have included wastewater treatment, stormwater management, solid waste facilities, drinking water systems, costal zone protection, and credit access for small businesses. The EFC has also produced reports on financing alternatives for Chesapeake Bay cleanup for setting up riparian buffers in the Bay watershed. Another EFC publication assists air program agencies with financial management of the Clean Air Act Title V program. The EFC also has a pilot project showing the feasibility of extending the State Revolving Fund (SRF) program to sustainable agriculture practices. Finally, the EFC has co-sponsored Regional conferences to discuss and disseminate information on financing environmental projects.

Potential Use: The EFC is designing educational workshops for environmental finance issues that are best addressed via a local watershed-based strategy. For Maryland's multi-county, watershed-specific, "Tributary Teams", it is developing workshops to identify fiscal problems relating to nutrient reduction, policy making processes, and major fiscal options. Excess nutrients have been identified as a major cause of Chesapeake Bay pollution. In cooperation with EPA, the EFC is conducting a series of workshops nationwide to encourage SRFs to move to an integrated watershed planning and priority setting process in considering loan applications to their programs.

Advantages: As part of the University of Maryland's Coastal and Environmental Policy Program, the EFC draws on the expertise of professionals in the fields of environmental research, agriculture, engineering, law, and policy as a holistic response to addressing environmental finance issues. Being part of EPA's network of university-based EFCs and working with its Environmental Finance Program, provides access to information on environmental finance from around the nation.

Limitations: While able to design and demonstrate ways to lower the cost of environmental facilities and services, the EFC does not provide direct funding for environmental projects.

Reference for Further Information: Region 3 EFC, University of Maryland Sea Grant College, 0112 Skinner Hall, College Park MD 20742. Phone: 301-405-6384. Fax: 301-314-9581. E-mail: hickey@umbi. umd.edu; World Wide Web: **http://www.mdsg.umd.edu/MDSG/EFC/index.html**.

REGION 2 EFC at the MAXWELL SCHOOL, SYRACUSE UNIVERSITY

Description: Established in 1994, the Syracuse University Environmental Finance Center (EFC) is located at the Maxwell School of Citizenship and Public Affairs. The EFC provides training, technical assistance, and outreach services to State and local officials relating to financing environmental systems. The EFC has undertaken projects ranging from studies of risk and finance decision-making methodologies to financing strategies and delivery mechanisms for funding water infrastructure. It has interests in the full-cost pricing of environmental services, water and wastewater privatization, and small community environmental infrastructure needs.

Actual Use: In 1996, the EFC completed a Congressionally-requested report for the Environmental Protection Agency (EPA) Office of Water examining alternative strategies for financing the water and wastewater infrastructure needed to meet national environmental mandates. The EFC also has conducted an analysis of the economic and fiscal consequences for Onondaga County (Syracuse) of the court-ordered remediation of Lake Onondaga. It has completed demonstrations and training on the use of an EPA-funded computer software program for setting water and wastewater rates. The EFC also co-sponsored a number of conferences/meetings with the New York State Environmental Facilities Corporation.

Potential Use: The EFC plans to conduct seminars and training throughout New York and the rest of the Region on water/wastewater rate-setting. The EFC plans to work with Cornell University and the Rensselaer Polytechnic Institute on a joint effort to form an Environmental Community Assistance Consortium (ECAC). The ECAC would assist New State and local officials in New York by providing training, institutional expertise, education, and outreach to assist in implementing State environmental programs.

Advantages: The Syracuse EFC benefits from the combined expertise of the network of university-based EFCs. Further, the EFC enjoys close access to the expertise at the Maxwell School, which is renowned for its premier public administration graduate programs and high quality, practitioner-focused training. When and if operational, the ECAC would be an intra-university partnership tapping the further expertise of Cornell University and the Rensselaer Polytechnic Institute.

Limitations: EFC program funding and staff resources are currently limited. Efforts are being made to expand the center's financial base to expand services. The EFC is not a funding source.

Reference for Further Information: U.S. EPA Region 2 Syracuse University Environmental Finance Center, The Maxwell School, 219 Maxwell Hall, Syracuse, New York 13244-1090. Phone: 315-443-9438. Fax: 315-443-5330. World Wide Web: **http://www.maxwell.syr.edu/exed/efc/**

REGION 9 EFC at CALIFORNIA STATE UNIVERSITY at HAYWARD

Description: The Environmental Finance Center, Region 9 (EFC9), is affiliated with California State University at Hayward (CSUH), and exists to benefit Environmental Protection Agency (EPA) Region 9, which includes Arizona, California, Hawaii, Nevada, Guam, and the Marshall Islands. The mission of the EFC9 is to educate and assist public and private business/financial managers, owners, and advisors in the application and use of innovative financing techniques that further the implementation of environmental programs and projects. EFC9 also seeks to support the establishment of environmental businesses and environmental technology development enterprises.

Actual Use: To assist environmental industry entrepreneurs in understanding the dynamics of their markets and identifying those market segments with the greatest potential, EFC9 has developed profiles of the U.S. environmental industry, environmental industry labor market models and databases, a 100 page directory of funding sources, and environmental education and training programs. The EFC has developed a financial model for assessing the viability, short- and long-term financial characteristics, and capital needs required for establishing and operating an Environmental Technology Incubator. EFC9 has also hosted numerous Environmental Business Opportunity conferences throughout California and in Hawaii.

Potential Use: EFC9 will be working to complete development and begin implementation of an innovative financing model designed to stimulate capital investments in the environmental industry. The EFC plans to inventory and assess current/planned water system improvements, expansions, and additions in EPA Region 9. EFC9 also looks forward to hosting and/or participating in future conferences involving such diverse topics as environmental business opportunities and ways to improve and finance the water systems of small and rural counties and cities.

Advantages: The EFC possesses considerable technical expertise on matters relating to the environmental industry, and through its participation in the Environmental Finance Center Network the diverse expertise of the other EFCs. In addition, EFC9 benefits from the expertise of the faculty at CSUH and from its contacts and connections with other colleges, universities, and affiliated laboratories through the State of California's renowned educational systems.

Limitations: While clients can benefit from EFC9's expert advice and technical assistance/outreach, the center is unable to provide direct financial support to businesses and communities in the Region.

Reference for Further Information: U.S. EPA EFC9, Building 7, Alameda Point, 851 West Midway Avenue, Alameda, California 94501, Telephone 510-749-6867, Fax: 510-749–6862, World Wide Web: **www.greenstart.org/efc9/.**

REGION 5 GREAT LAKES EFC at CLEVELAND STATE UNIVERSITY

Description: In May 1995, the Environmental Protection Agency (EPA) established the Region 5 Great Lakes Environmental Finance Center (EFC) in the Urban Center at Cleveland State University (CSU). The Great Lakes EFC serves a six-State area, including Ohio, Indiana, Illinois, Michigan, Wisconsin, and Minnesota. The primary mission of the EFC is to assist State and local government and private sector organizations in devising effective financing strategies for environmental improvement projects. It accomplishes this by providing high-quality technical assistance and training services to its clients. While the EFC's chief client is the public sector, it has steadily increased services to banks, insurance companies, environmental consultants, law firms, and other private businesses serving the environmental industry.

Actual Use: The Region 5 EFC's initial major focus has been on brownfields site redevelopment. This involves the financial issues affecting the availability of credit and financial tools and incentives to spur investment in abandoned commercial and industrial sites. These sites are a major constraint to the redevelopment of central city neighborhoods, which desperately need new jobs and investment. The issue is a top priority in all of the Great Lakes region's major cities, including many small and medium-sized cities. Other areas of importance for the EFC are environmental facility privatization and market-based pollution prevention, both of which are emerging strategies cities are examining to achieve more cost effective environmental cleanup-up goals.

Potential Use: The EFC plans to work more closely in joint projects with other centers. It will be collaborating with the Region 9 EFC in a two-city demonstration project to develop innovative regional strategies to increase the demand for pollution prevention activities by smaller companies. The EFC will continue and expand its efforts to provide on-site advisory assistance to Midwestern cities In addition to working with Benton Harbor, Michigan, the plans to conduct technical assistance workshops in five other Midwestern cities in 1997.

Advantages: The EFC can tap the expertise and resources of CSU's Urban Center as well as the rest of the University. It can also tap the expertise and contacts of the other centers in EPA's EFC Network and those of EPA's Environmental Finance Program in Washington, DC.

Limitations: Most EFC activities are concentrated in the six-States comprising EPA Region 5.
The EFC provides financial technical assistance and outreach, but no direct funding support.

Reference for Further Information: Region V Great Lakes EFC, the Urban Center at Cleveland State University, Economic Development Program, UB 215, Cleveland, Ohio 44115, Telephone: 216-687-6947, Fax: 216-687-9227, World Wide Web site: **http://www.csuohio.edu/glefc/**.

REGION 10 EFC at BOISE STATE UNIVERSITY

Description: The Environmental Protection Agency's (EPA's) Region 10 Environmental Finance Center (EFC) was created in 1995 and is contained within the Public Affairs Program of the Boise State University (BSU) College of Social Sciences and Public Affairs. The EFC serves the Pacific Northwest and Intermountain States of Alaska, Idaho, Oregon and Washington. The EFC seeks to assist these States and their communities on environmental financing issues, particularly with regard to drinking water system capacity assessment and the needs of small communities and systems.

Actual Use: The EFC has been an important partner to State and local governments in Region 10 in addressing financing issues relating to unfunded and underfunded environmental mandates in small communities. Program faculty, working with staff from the State of Idaho, have been national leaders in developing multi variate drinking water capacity assessment and strategic planning approaches similar to those in the Safe Drinking Water Act Amendments of 1996. The EFC has been working to improve the financial and managerial capacities of public water and wastewater treatment systems.

Potential Use: The EFC seeks to provide the following technical assistance and outreach services: workshops, conferences, training seminars, and formal education directed at expanding the ability of public and private leaders to address environmental problems; practical guides, handbooks, and reports on financial and management issues relating to environmental systems; assistance to local and tribal governments and other public water and wastewater systems to improve financial management capabilities and, where appropriate, to increase their use of alternative approaches to traditional finance and revenue raising methods; and initiatives to foster regional partnerships in improving public management and innovative financing techniques.

Advantages: The Region 10 EFC participates in EPA's university-based Environmental Finance Network. Using its own expertise, the sharing of information and expertise between centers, and using the Network as a clearinghouse on financing issues, the EFC is at BSU is able to assist in addressing the how-to-pay issues of environmental compliance in Region 10.

Limitations: Although the EFC helps communities to address financing options, low-cost alternative and appropriate technologies, and appropriate technologies and management techniques to meet infrastructure challenges, the EFC is not itself a funding source.

Reference for Further Information: The Environmental Finance Center at Boise State University, 1910 University Drive, Boise, ID 83725, Telephone: 208-385-4293, Fax: 208-385-4370, E-mail: bjarock@idbsu.edu/efc, Web site: **http://sspa.boisestate.edu/efc/index.html**

REGION 4 EFC at the UNIVERSITY OF NORTH CAROLINA

Description: This prospective Environmental Protection Agency (EPA) Region 4 Environmental Finance Center (EFC) is contained within the Economic Development Office of the University of North Carolina (UNC) at Chapel Hill. The UNC EFC primarily will serve the Southeastern United States -- including Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, and Tennessee. The EFC's initial expertise will be in the areas of environmental finance, management and planning. The Center recognizes the importance of economic development to environmental infrastructure and to the provision of truly sustainable environmental services.

Actual Use: The North Carolina EFC's initial core mission will focus on the environmental financing needs of small- to medium-sized communities, particularly those considering interlocal or regional arrangements for providing environmental infrastructure. In this regard, the EFC's staff has begun working with representatives from four counties in the North Carolina central coastal plain to help promote joint solutions to critical wastewater issues on that coast. The EFC is developing an approach involving enhanced local planning and plans to prepare one or more case studies during and/or upon completion of this project. The EFC also has begun working with the Eastern Band of Cherokee Indians and the North Carolina Attorney General's office to advise the Tribe on accessing State resources for environmental financing needs.

Potential Use: The North Carolina EFC intends to assemble a group of expert advisors drawn from academia, government, and mission-related non-governmental organizations (NGOs) to help set future directions and assess projects. The EFC also plans to develop a matrix of contacts for use by staff and clients on any particular project. The EFC recognizes the need for constructing an Internet web site and developing the information management tools necessary to carry out its planned environmental and finance missions.

Advantages: The Region 4 EFC located at the University of North Carolina hopes to become one of the university-based centers participating in EPA's Environmental Finance Network. Using its own expertise in a number of areas, the sharing of information and expertise between centers, and using the Network as a clearinghouse on financing issues, the EFC at UNC will be able to assist in addressing the how-to-pay issues of environmental compliance in Region 4 and beyond.

Limitations: The EFC's program funding and staff resources are currently quite limited. The EFC plans concentrated efforts to expand the center's financial base in order to expand services. The EFC is not a funding source for environmental financing needs.

Reference for Further Information: U.S. EPA Region 4 (prospective) Environmental Finance Center at the University of North Carolina, Office of Economic Development, CB#3435, Chapel Hill, NC 27599, Telephone: 919-962-8494, Fax: 919-962-5824, E-Mail: **mluger@email.unc.edu**.

REGION 4 EFC at the UNIVERSITY OF LOUISVILLE

Description: This prospective Environmental Finance Center (EFC) at the University of Louisville (UL) is located in the University's Kentucky Institute for the Environment and Sustainable Development. The UL EFC's primary service area will be the Southeastern United States -- encompassing Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, and Tennessee. The EFC 's staff has expertise and interest in environmental policy and planning, economic development, environmental and other public utilities, sustainable development, urban sprawl, brownfields redevelopment, and cost-benefit analyses.

Actual Use: The prospective Louisville EFC is currently developing a detailed work plan in consultation with the Environmental Protection Agency's (EPA's) Region 4 Office in Atlanta, GA. The UL EFC is also meeting with the other Region 4 EFC located at the University of North Carolina in Chapel Hill to develop joint environmental finance work projects, as appropriate.

Potential Use: The EFC Staff's wide range of expertise gives it considerable leeway in determining the Center's future work areas. Examples of possible future work areas include brownfields finance, environmentally sustainable development/smart growth, multi-media environmental revolving funds, rate-setting for environmental infrastructure services, and capital access for small businesses and businesses in the environmental goods and services industry.

Advantages: The Region 4 EFC located at the University of Louisville hopes to become one of the university-based centers participating in EPA's Environmental Finance Network, and one of two in EPA Region 4. Using its own expertise in a number of areas, sharing of information and expertise with other centers, and using the Network as a clearinghouse, the Louisville EFC will be able to assist communities in Region 4 and beyond in addressing the financial components of environmental compliance issues.

Limitations: The EFC is in the early stages of its development. The EFC itself is not a source of money to help meet environmental financing needs.

Reference for Further Information: U.S. EPA Region 4 (prospective) Environmental Finance Center at the University of Louisville, Kentucky Institute for the Environment and Sustainable Development, 203 Patterson Hall, Louisville, KY 40292, Telephone: 502-852-1851, Fax: 502-852-4677, E-Mail: **rabarn01@ulkyum.louisville.edu**.

ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCE PROGRAM

Description: The Environmental Protection Agency's (EPA's) Environmental Finance Program (EFP) is a small, multi-media effort that seeks to bridge the gap between the growing costs of environmental protection and the ability of governments and the private sector to meet those costs. Drawing on the expertise of EFP staff, the Environmental Financial Advisory Board (EFAB) and the Environmental Finance Center (EFC) Network, the EFP works to lower costs, avoid costs, increase efficiencies, stimulate public and private investment, and build financial capacity by creating partnerships with State and local governments and the private sector to help fund environmental needs.

Actual Use: The EFP provides professional staff support to EFAB. EFAB is a federally chartered advisory board composed of finance experts that provides advice and analysis to EPA on how to pay for environmental protection. To date, EFAB has produced numerous advisories and reports on a wide range of environmental financing topics. For more information on EFAB, see the immediately prior tool in this section, **Environmental Financial Advisory Board**.

The EFP also manages EPA's network of university-based, regional EFCs. These EFCs provide State and local officials and small businesses with training, advisory services, publications, and analyses on environmental financing trends and techniques. The eight-university network currently includes the University of New Mexico, University of Maryland, Syracuse University, California State University at Hayward, Cleveland State University, Boise State University, University of North Carolina and University of Louisville.

Potential Use: The EFP could take additional steps to improve its efforts in working more closely with all EPA program offices. It could also seek within resource constraints to expand its efforts in working with those EPA Regions not having EFCs.

Advantages: The EFP provides EPA with an integrated, multi-media environmental financing focus. Through EFAB and the EFCs, the Agency can access real-world, public finance/investment banking expertise which it does not have and could not afford to obtain. Working with these groups, the EFP is able to greatly leverage its own financing expertise and resources.

Limitations: The EFP is small and cannot work with all EPA offices at once. Due to resource constraints and the demonstration nature of the EFC concept, there are EFCs in only seven Regions.

Reference for Further Information: U.S. EPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC, 20460, Mail Code: 2731R, Fax: 202-565-2587, Contact George Ames at **ames.george@epa.gov**, Internet web site: **http://www.epa.gov/efinpage**.

ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCIAL ADVISORY BOARD

Description: The Environmental Financial Advisory Board (EFAB), a federally chartered advisory board operating under the Federal Advisory Committee Act, provides independent advice to the Environmental Protection Agency (EPA) on environmental finance issues. The Board consists of nationally recognized experts drawn from government; the finance, banking, and legal communities; business and industry; and national organizations.

Actual Use: EFAB has an impressive record, producing more than over twenty major reports and advisories since 1989. The Board has identified numerous policy and program options across a broad spectrum -- incentives and revenues; environmental costing; institutional efficiencies; outreach and coordination; and rural, urban, and international -- that seek to lower the costs of environmental protection, increase public and private investment, and build State and local financial capacity to carry out environmental programs. Examples of EFAB work includes reports on: financing brownfields redevelopment, Superfund leveraging, international/NAFTA implementation, EPA's Safe Drinking Water Act guidance, finance options to implement the Clean Air Act, the integration of environmental risk and finance, and small businesses' problems in accessing capital. EFAB continues to work with EPA's Environmental Finance Centers (EFCs), with members advising the EFCs and serving on EFC-sponsored expert finance panels (charrettes) designed to help local governments and small businesses.

Potential Use: Senior EPA managers could more frequently request that the Board address financing issues related to important and topical environmental protection activities, including legislation and regulatory matters.

Advantages: EFAB provides EPA with real-world public finance/investment banking expertise which the Agency does not possess, nor can it afford to pay to retain the services of the typical member. The only realistic way to access such expertise is on a volunteer, advisory basis.

Limitations: As a federal advisory committee, the Board's recommendations are purely advice and EPA may choose not to act on them. Also, by the nature of the advisory board process, the Board's recommendations are developed by a group of approximately twenty-five individuals, and not by an all-inclusive, consensus development process encompassing all interested stakeholders.

Reference for Further Information: U.S. EPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC, 20460, Mail Code: 2731R, Fax: 202-565-2587, Contact: Alecia Crichlow at **crichlow.alecia@epa.gov**. EFAB information is also available on the World Wide Web at **http://www.epa.gov/efinpage**.

FINANCE CHARRETTES

Description: A "finance charrette" is a forum where a regulated entity meets with a panel of finance experts from the public and private sectors that offers advice and recommendations on finance issues faced by that entity. The charrette technique has been pioneered in the environmental finance field by the EPA Region 3 Environmental Finance Center (EFC) at the University of Maryland at College Park (see **Section 5.A., Region 3 EFC at the University of Maryland**). The public sector expert participants come from interested federal and State agencies. The private sector experts are drawn from business and industry, banks and other financial institutions, and the professional consultant services arena. Typically, a charrette lasts a half day beginning with a description of the problems by, for example, officials from a local government, followed by questions and answers with the panel, and report out by panel members on the actions they recommend as individuals and as a group. The proceedings are taped and results summarized.

Actual Use: Through April 1999, the University of Maryland EFC has developed and conducted more than twenty charrettes examining the environmental financing problems of communities, counties, and businesses in the mid-Atlantic region and across the nation.

Potential Use: Charrettes could be used by colleges, universities, and other technical assistance providers nationwide to determine, evaluate and help solve the environmental financing problems facing governments, communities, and businesses.

Advantages: Charrettes have proven to be a highly effective outreach tool in providing useful advice and recommendations to local governments not only on the environmental financing problem that brought them to the table to begin with, but also on other issues that they might not have been aware of. A significant spinoff benefit has been that the real world information gleaned from the charrettes can be used to develop and improve finance courses offered by EPA's network of eight university-based Environmental Finance Centers (see tool listings on the EFCs in this section).

Limitations: To maximize the panel's contribution, it is essential to give them clear, accurate and complete information on the issue prior to the charrette. Political issues disguised as finance issues need to be weeded out in advance. The charrettes undertaken to date have tended to work best with communities of populations under 50,000.

Reference for Further Information: Region 3 EFC, University of Maryland Sea Grant College, 0112 Skinner Hall, College Park MD 20742, Telephone: 301-405-6384, E-mail: hickey@umbi. umd.edu., World wide web: **http://www.mdsg.umd.edu/MDSG/EFC/index.html**.

NATIONAL TECHNICAL ASSISTANCE PROGRAMS
(Non-profit)

Description: National non-profit technical assistance entities that facilitate the financing and implementation of environmental projects and programs. Such entities can include non-profit organizations ranging from environmental media-based associations to community-focused programs to university-based groups to professional associations and organizations to cooperative networks.

Actual Use: There are a significant number of excellent nonprofit national technical assistance organizations operating in the environmental arena. Some good examples of this type of organization include the American Waterworks Association, the Environmental Protection Agency's (EPA's) network of eight university-based Environmental Finance Centers, the National Rural Water Association, the six Rural Community Assistance Programs, and West Virginia University's Environmental Services and Training Division.

Potential Use: There is a great need in communities, especially in the thousands of smaller ones, for technical assistance and outreach related to financing environmental systems and activities. As both federal and State budget constraints continue, the costs of environmental compliance grows, and communities face increasing demands in all service areas, this need for financial technical assistance will grow even further.

Advantages: Many national technical assistance organizations have accumulated considerable experience and developed significant technical expertise in dealing with communities and their environmental and financing problems. The best of these organizations have earned the hard-won confidence of their client communities and other groups.

Limitations: Most technical assistance organizations usually do not provide any significant direct financial assistance to communities for environmental activities. Furthermore, providing financial technical assistance and/or environmental assistance may be often only one part of the overall mission of many national technical assistance providers.

Reference for Further Information: American Water Works Association, 6666 West Quincy Avenue, Denver, CO 80235. Phone: 303-794-7711. U.S. EPA Environmental Finance Center Network: see Page 5A-10. National Rural Water Association, P.O. Box 1428, Duncan, OK 73534. Phone: 405-252-0629. Rural Community Assistance Programs, 602 South King Street, #402, Leesburg, VA 22075. Phone: 703-771-8636. Also, see **Section 5.A., Rural Community Assistance Corporation** and **West Virginia Environmental Services and Training Division**.

RETIRED VOLUNTEERS

Description: A group of retired environmental finance practitioners could make their professional services available to small local governments and businesses on a voluntary basis. The program could be publicly or privately sponsored or supported by some combination of public-private partnership. The assistance offered would be advisory in nature, extending to such matters as suggestions for raising revenues to finance environmental improvements, review of capital programs, tracking new developments in environmental finance, and assisting at meetings with citizens and regulatory officials. Travel and living expenses could be paid by host communities/businesses or via cost-sharing arrangements with sponsoring organizations.

Actual Use: None currently known involving this type of technical assistance. However, the Senior Corps of Retired Executives (SCORE) program of the Small Business Administration is a good example of this outreach technique. SCORE volunteers assist small businesses with management issues. No compensation is paid, but volunteers are paid for "out-of-pocket" expenses. The program has over 12,000 volunteers nationwide. Readers are encouraged to let us know of any other examples by filling out a blank tool form (see **Appendix F**).

Potential Use: There is great potential use for this tool given the need by many smaller communities and businesses for financial technical assistance. Volunteer assistance could easily be linked to other outreach efforts such as follow-up to a finance charrette (see in this section, **Finance Charrettes**) and/or a water and wastewater rate model workshop (see in **Section 5.B., Rate Models**).

Advantages: Useful, professional financial outreach services could be provided to needy customers at very low costs. Retired volunteers could also help give State and federal environ- mental officials a more complete and clearer picture of the nature of financing problems faced by small local governments and businesses. This knowledge could help State and federal officials improve their regulatory programs as well as the content and delivery of technical assistance.

Limitations: Connecting volunteers with communities/businesses takes a lot of up-front work. Help provided is only as good as the volunteer. Job benefits such as workmen's compensation can be a problem. Volunteer programs must not to compete unfairly with the private sector.

Reference for Further Information: SCORE Association, 409 3rd Street, SW 6th Floor, Washington, DC 20024, Telephone: 800-634-0245, World Wide Website: **http://www.score.org/.**

RURAL COMMUNITY ASSISTANCE CORPORATION

Description: The Rural Community Assistance Corporation (RCAC) is a recognized 501(c)(3) nonprofit organization. RCAC seeks to improve the quality of life for rural communities and disadvantaged people in 12 western States: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Nevada, Oregon, Utah, and Washington. Working with rural governments and community organizations, RCAC provides a wide range of development assistance involving housing, environmental services, local organizational capacity, and information and outreach. RCAC environmental activities focus on improving local drinking water, wastewater, and solid waste management and helping communities comply with environmental requirements.

Actual Use: RCAC provides environmental training and technical assistance to more than 120 communities and small utilities each year. It helps these entities to comply with federal and State drinking water standards, reduce or eliminate water pollution, develop and implement low-cost water and wastewater systems, train water, wastewater, and solid waste operators, and acquire affordable environmental systems. In Fiscal Year 1994, RCAC leveraged more than $18 million for water and wastewater facilities development and trained more than 1500 public officials and citizens. The division also provides help to more than 60 native American Tribes in 75 communities. This work includes evaluating the management of wastewater facilities, developing rehabilitation plans for environmental systems, producing reference materials, and assisting in disputes resolution.

Potential Use: RCAC's community-based approach could be successfully applied in many more small communities throughout its 12 State service area. The assistance that RCAC provides in those States could be replicated by similar nonprofit technical assistance providers throughout the rest of the country. Given adequate resources, RCAC could expand the types of assistance that it provides.

Advantages: RCAC stresses low-cost and low-tech solutions whenever possible and appropriate. In almost twenty years of working with small communities and developing solutions to their environmental problems, RCAC has developed considerable expertise and earned the hard-won confidence of rural communities in its service area.

Limitations: RCAC does not assist medium-sized and larger communities/utilities, and does not possess the resources to help all of the small ones. It works only in 12 States located in the western United States. Other rural assistance providers run programs that cover the remaining 38 States.

Reference for Further Information: Rural Community Assistance Corporation, 2125 19th Street, Suite 203, Sacramento, California 95818, Telephone: 916-447-2854, Fax: 916-447-2878, RCAC's homepage on the World Wide Web: **http://www.rcac.org/index.htm**.

SELF-HELP

Description: Self-help is an "in the field" strategy supported by many State government and nongovernmental organizations that helps small communities help themselves in solving their environmental problems. Self-help has proven a highly effective, low-cost approach to providing environmental services and achieving compliance in small communities. It depends heavily on local residents to contribute their time, labor and, on occasion, material and equipment in getting the job done. A local project coordinator or "sparkplug" is essential to success. In the self-help paradigm, State and federal agencies are called upon to move to supporting roles -- providing outreach and technical services.

Actual Use: The self-help approach was pioneered in the State of New York by the Rensselaerville Institute. The Institute helped New York State create its "Self-Help Support System," a ten-year old program that has saved nearly 150 New York towns more than $17 million over the cost of initial job estimates. The Institute has taken its program nationwide supporting self-help projects and related activities in Arkansas, Maryland, North Carolina, Oklahoma , and Washington State. The self-help approach has also been employed in countries worldwide -- including Australia, Nicaragua, Japan and Finland.

Potential Use: Self-help could be effectively used to implement environmental projects and activities in thousands of communities nationwide. The approach could provide substantial assistance to the 75% of American communities with less than 10,000. Based on past experiences it could be especially effective with regard to small capital projects providing drinking water and wastewater treatment services.

Advantages: The approach offers a proven, viable local alternative to implementing local environmental that holds down costs, sizes technology to needs, builds local capacity, and supports community independence. Self-help projects can be implemented in a very timely manner due to the lack of bureaucratic red tape.

Limitations: Self-help will not work in every community. There has to be in the community a minimum level of consensus of purpose as well as confidence in local abilities to succeed with the project. In addition, the approach does not work very well in the absence of a local "sparkplug" or champion pushing the project along.

Reference for Further Information: See "*The Self-Help Handbook*," by Jane W. Schautz, available through the Rensselaerville Institute, Rensselaerville, NY, Telephone: 518-797-3783, Fax: 518-797-3692.

WEST VIRGINIA UNIVERSITY
ENVIRONMENTAL SERVICES AND TRAINING DIVISION

Description: West Virginia University's Environmental Services and Training Division (ESTD) is an important national environmental technical assistance program directed at small communities. The Division is comprised of four major federally-supported technical assistance efforts:

1.)***National Small Flows Clearinghouse*** - proves technical information, educational products, and assistance on wastewater issues to small communities;
2.)***National Environmental Training Center for Small Communities*** - provides information and training to small communities on wastewater, drinking water, and solid waste issues;
3.)***National Onsite Demonstration Project*** - manages six demonstration sites testing alter- native wastewater solutions for small communities in environmentally sensitive areas; and
4.)***National Drinking Water Clearinghouse*** - provides technical assistance, information, and educational products relating to drinking water issues to small communities.

Actual Use: ESTD provides free and low-cost information to every State and US territory. It provides this assistance each year through 30,000 telephone calls, 30,000 computer Bulletin Board System calls, 65,000 product distributions, 100,000 newsletters mailed quarterly, and 10 or more train-the trainer sessions. ESTD assistance helps small communities to understand environmental and public health regulations, save or locate money, solve technical problems, learn about alternative technologies, and locate additional assistance. In its work with small communities, ESTD seeks through its work to increase the environmental knowledge base, spur appropriate technology transfer, create informed decision makers and problem solvers, and enhance professional skills.

Potential Use: The potential use, and growth of use, of ESTD services is high. Many thousands of additional small communities could benefit from the environmental information and assistance provided by ESTD.

Advantages: Access to, and use of, its information/assistance is easy and free or low-cost. ESTD provides a comprehensive one-stop shop for small communities needing environmental information.

Limitations: Providing financial technical information and assistance is only one part of ESTD's overall work. ESTD's single location limits its ability to deliver field technical assistance nationally.

Reference for Further Information: Environmental Training and Services Division, West Virginia University, P.O. Box 6064, Morgantown, WV 26506-6064, Telephone: 304-293-4191, Fax: 304-293-3161, Toll Free: 1-800-624-8301, BBS: 1-800-932-7459.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR INSTITUTIONAL ARRANGEMENTS

Criteria/ Outreach Tool	**Actual Use**	**Program Size**	**Program Quality**	**Administrative Ease**	**Equity**	**Environmental Impact**
***Border Environmental Cooperation Commission**	Low	Mod.	High	Low - Mod.	Mod.	High
Circuit Riders	Mod.	Low	Mod.	High	Mod..	Mod.
***Cooperatives**	Low	Mod.	High	Mod.	Low	Mod.
***Cooperative Extension Systems**	High	High	Mod.	High	Mod.	Mod.
***Drinking Water State Revolving Fund Capacity Development**	High	High	High	Mod.	Mod.	High
***Environmental Finance Center Network**	Mod.	Low	Mod.	High	Mod.	High
***EPA: Environmental Finance Program**	Mod.	Mod.	Low	High	Mod.	Mod.
EPA: Environmental Financial Advisory Board	Low	Low	Mod.	Mod.	Low	Mod.
***Finance Charrettes**	Low	Low	High	High	Mod.	High
***National Technical Assistance Programs (Non-profit)**	High	High	High	High	High	Mod.

COMPARISON MATRIX continued

Criteria/ Outreach Tool	**Actual Use**	**Program Size**	**Program Quality**	**Administrative Ease**	**Equity**	**Environmental Benefits**
Retired Volunteers	Low	Low	Mod. - High	Mod.	Low - Mod.	Low
***Rural Community Assistance Corporation**	Mod.	Mod.- High	High	High	Mod.	Mod. - High
***Self-Help**	Mod.	Mod.	High	High	Mod.	High
***West Virginia University Environmental Services and Training Division**	High	High	Mod.	High	Mod.	Mod.

High - High use (over 25 States and many localities); criteria score high (e.g., assistance is hands-on, easy to use, cost-effective, and project specific)

Mod.- Moderate use (10-25 States and many localities); criteria score in medium range

Low - Low use (under 10 States and few localities); criteria score poorly (e.g., printed information only, difficult to access, and not project specific)

*Star indicates comparatively best rated mechanisms

5.B. ELECTRONIC SERVICES

5.B. ELECTRONIC SERVICES

Description: Electronic services are forms of electronic technology used by one party to provide information, training, analyses, advice, and outreach to one or more other parties. These services can include-- but are not necessarily limited to -- computer networks, online data bases and libraries, computer software, and voice, video, and/or data transmission. This last category encompasses such technologies as facsimile transmissions, computerized telephone referral services, telephone conferencing, and video conferencing.

Electronic services are the fastest growing method of conveying information in this country and many others, including environmental and financing information. The use of these services is growing and is increasingly being incorporated into the routine operations of all levels of government, the private sector, professional associations non-profit organizations, educational and training institutions, and large numbers of the general public.

Advantages: Electronic services can greatly facilitate the flow of information and outreach between these many and often varied parties. These services have the capability of making these exchange processes both much faster and much more efficient. Using electronic services, more people and parties, public and private, can interact and access significantly more information in much shorter periods of time. Large, sophisticated users may benefit as much, or even more, from these services as small users.In addition, these interactions and information exchanges can often be implemented in a more cost-effective manner. Properly implemented, electronic services can help control resource consumption and pollution by reducing paper use, cutting transportation and fuel costs, and preventing related air, water and land pollution (and the need to clean it up).

Limitations: Electronic services in one way are almost the exact opposite of institutional outreach since most are impersonal. Not everyone has access to, and/or the inclination to use, these types of services. The costs of obtaining the technological equipment needed can be a financial burdensome, perhaps prohibitively so to some parties. As with many other complex technologies, not everyone has the necessary skills to properly use and/or maintain electronic services and any associated equipment. The popularity of an electronic service such as the Internet/World Wide Web may also cause problems. Growth in use can outstrip the ability of technology vendors to provide and maintain a service. A good example of this limitation is the serious service outage problems experienced by America On Line, Inc. during the winter of 1996-1997.

Summary: The nine electronic services described here are government-sponsored services, with the exception of the World Wide Web which in itself makes many of the others possible. Since electronic services are the fastest growing source of information exchange many other new services are possible. Some private sector electronic services for businesses are discussed in **Section 10 : Tools to Access Financing for Small Businesses and the Environmental Goods and Services Industry**. For almost any environmental finance problem-solving effort, there is probably existing software that is useful, or if not, it could be developed. Suggestions for additional electronic services and software for inclusion in the *Guidebook* are most welcome.

LIST OF ELECTRONIC SERVICES
(In Alphabetical Order)

*1. Catalog of Federal Domestic Assistance
*2. EPA: Environmental Finance Program Home Page
3. EPA: Environmental Financing Information Network
*4. EPA: Home Page
*5. FinanceNet
6. Long Distance Learning
*7. Rate Models
*8. The Environmental Hotline, Earth's 911
*9. World Wide Web

* Stars indicate most highly rated mechanisms as described in the Comparison Matrix at the end of the narratives. See Introduction to the *Guidebook* for a description of the criteria used. Ratings of "High", "Moderate", and "Low" are for comparison purposes only, as some ratings are necessarily subjective and data are incomplete.

CATALOG OF FEDERAL DOMESTIC ASSISTANCE

Description: The *Catalog of Federal Domestic Assistance* (C*FDA*) is a government-wide compendium of federal programs, projects, services and activities which provide grants, loans, and other assistance or benefits to the American public. The *CFDA* contains information on financial and nonfinancial assistance programs administered by departments, agencies, commissions, and other federal government establishments. Potential recipients of assistance or benefits include, but are not limited to: State, local, and other governments; non-profit organizations, groups and institutions; private sector for-profit firms, partnerships and corporate entities; and the general public. The *Catalog* is updated at least twice a year.

Actual Use: *CFDA* data is available in multiple formats: hard copy through the World Wide Web, machine-readable magnetic tape, high-density floppy diskettes, and CD-ROM. These last three formats contain the text published in the program description section of the *CFDA*, as well as characteristics data of coded program information taken from the text. Important information provided in the *CFDA* includes program function, types of assistance, applicants, beneficiaries, circular requirements, obligations, matching requirements, agency contact information and authorizing legislation. The *Catalog* is a valuable and widely used reference document in all of its formats. For example, between January 5, 1997, and February 12, 1997, the *CFDA's* World Wide Web site alone was accessed and searched more than 41,000 times.

Potential Use: The potential future use of the *CFDA* via its numerous forms, but especially its World Wide Web site, is large. As more local officials become more computer proficient and more knowledgeable about the World Wide Web, their use of the *CFDA* should grow rapidly.

Advantages: Accessing the *CFDA* by computer through the World Wide Web is fast, easy, and efficient. Summaries and detailed program information on all types of federal assistance from all federal departments, agencies and other organizations can be accessed and printed.

Limitations: Information retrieval may be slowed by growing use of the World Wide Web and accompanying strains on technical systems support. User uncertainty or lack of specificity as to the agency and/or assistance program in question can complicate and delay the search for information.

Reference for Further Information: The *Catalog* can be accessed via the World Wide Web at **http://aspe.os.dhhs.gov/cfda/index.htm**. Questions and requests to buy magnetic tapes, diskettes, or CD-ROM should go to the Federal Domestic Assistance Catalog Staff (MVS), General Services Administration, 300 7th St., SW, Washington, DC 20407. Phone: 202-708-5126.

ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCE PROGRAM HOME PAGE

Description: The Home Page for the Environmental Protection Agency's (EPA's) Environmental Finance Program (EFP) contains detailed information on the program, its primary components, and important work products. Primary EFP components include: the network of eight-university based Environmental Finance Centers (EFCs); the Environmental Financial Advisory Board (EFAB) and the Environmental Financing Information Network. Important information provided on the home page includes contacts for the EFCs, selected EFC documents, such as case studies developed through the Region 3 EFC finance charrettes, the names and affiliations of EFAB members, EFAB advisories and reports; and instructions for accessing the EFIN database.

Actual Use: The EFP Home Page provides wide, unrestricted, and cost-free public access to a large number of computer users desiring information on environmental finance and costs. This information, moreover, is multi-media in scope and covers both the public and private sectors.

Potential Use: The amount of environmental finance information available on the Home Page will continue to grow and this growing body of information will be electronically available to a growing (perhaps exponentially) number of Internet/World Wide Web users.

Advantages: Information on the EFP Home Page is currently quickly accessible to a wide variety of users. Through the electronic medium, users have a central location where they can access important environmental finance information and contacts.

Limitations: The EFP Home Page is only available to users who have World Wide Web access. Growing use of the World Wide Web combined with server constraints may limit or slow access to this and other Home Page sites. The costs of maintaining the Home Page and possible Home Page space limitations may in the future dictate the volume of information (such as full text documents) that can be put on the Web site.

Reference for Further Information: The Environmental Finance Program (EFP) Home Page can be accessed via U.S. EPA's Home Page, **http://www.epa.gov,** under "Money Matters" or directly at **http://www.epa.gov/efinpage/**. The EFP's mailing address is U.S. EPA, Office of the Comptroller, Environmental Finance Program, 401 M Street, SW, Washington, DC 20460, Mail Code: 2731R, Fax: 202-565-2587, E-mail: George Ames at **ames.george@epa.gov**.

ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL FINANCING INFORMATION NETWORK

Description: The Environmental Protection Agency's (EPA's) Environmental Financing Information Network (EFIN) provides information on financing alternatives for State and local environmental programs and projects and small businesses. Information is available through an online database, which contains abstracts of publications, case studies and contacts, and via the EFIN World Wide Web site at **http://www.epa.gov/efinpage/**. The EFIN Center operates an infoline which provides callers with referrals, assistance with accessing and searching the EFIN database and the Web site, and serves as a point of contact for ordering documents.

Actual Use: Federal, State and local officials, and individuals seeking sources of funding for new businesses and research use EFIN as a reference service. Users can search the EFIN database or request the librarian to conduct a search for them. The EFIN Center also distributes documents published by the Environmental Finance Program (EFP), such as reports and advisories developed by the Environmental Financial Advisory Board (EFAB) as well as information about projects managed by the Environmental Finance Center (EFC) network. The EFIN and Environmental Finance Program Home Page are increasingly being used as a source of information on EFP programs, services and publications.

Potential Use: Through the EFIN Home Page, EFIN will provide electronic information on the EFP programs and full text of EFP publications, for example, case studies developed from Environmental Finance Center charrettes. EFIN can also provide links to other sources of information such as EPA's grant and research programs.

Advantages: EFIN is a central point for environmental financing information. It provides an easily accessible reference service via the infoline, EFIN e-mail mailbox and a link to the EFIN database via the EPA's Online Library System Web site.

Limitations: The EFIN database can be difficult to access if the user does not have the proper Telnet or modem connections. In addition, there can be a lag time between the time material is received by EFIN and loaded onto the database.

Reference for Further Information: U.S. EPA, Office of the Comptroller, Environmental Finance Program, 400 M Street, SW, Washington, DC 20460, Mail Code: 2731R, Infoline: 202-564-4994, Fax: 202-565-2587, E-mail address: **efin@epa.gov**, Internet access to the EFIN database: **http://www.epa.gov/efinpage/efindata.htm**.

ENVIRONMENTAL PROTECTION AGENCY HOME PAGE

Description: The Environmental Protection Agency (EPA) Home Page provides public access to the activities and organizational components of the Agency. The Home Page has two sections. The first section is divided into user groups, such as "Concerned Citizens" and "Small Business and Industry". The second includes access to the Agency's "Offices, Labs and Regions" and "Projects and Programs". Links to financial information can be found under the category "Money Matters".

Actual Use: The EPA Home Page provides the first step in locating information in the EPA. A user can select a link from the user and resource categories. The EPA Home Page also has both browse and search capabilities. A user can browse for information on a specific subject(s), or search for sites on a topic(s). There is also the capability to search via zip code.

Potential Use: The EPA Home Page could be more of a source for researching environmental topics rather than a starting point. Currently, there are several levels a user must go through to locate information on a specific topic. The Home Page could be restructured to include more information, such as a list of the "Offices, Labs and Regions" on the page itself. The functions of the Offices and Programs could be more transparent, and the subjects could be shown on the Home Page.

Advantages: The EPA Home Page provides a fairly comprehensive guide to the many types of information located on the overall EPA Web site. Interested users are directed to specific areas to begin their search and further directed at each subsequent step to sub-areas.

Limitation: There are numerous layers on information on the EPA World Wide Web site and it can take considerable time to locate information. The current search engine does not always provide relevant results.

Reference for More Information: U.S. EPA, Information Resource Center, 400 M Street, SW, Washington, DC 20460, Mail Code: 3404, Telephone: 202-260-8674, Internet/World Wide Web access: **http://www.epa.gov/**. There are contacts for various types of questions, which can be accessed by clicking on the Comments section. This includes general questions, comments and technical assistance. There is also an e-mail address: **public-access@epamail.epa.gov**.

FINANCENET

Description: Established in 1994 by Vice-President Al Gore's *National Performance Review*, FinanceNet is the largest government Internet administrative platform in the world. It serves as the Internet's home for public financial management information. FinanceNet is a worldwide network of people spanning federal executive agencies, departments and other groups; International, State, local, and other municipal governments; professional organizations, educational institutions; and the general public.

Actual Use: FinanceNet provides Internet users with access to current and archival electronic reference libraries of financial legislation, Congressional testimony, executive orders and memoranda, minutes and highlights of meetings of the U.S. Chief Financial Officers (CFOs) Council (comprised of CFOs from the 24 largest federal agencies and departments), and federal, State, and local government financial circulars, bulletins, releases, news, notices. It also provides Internet users with access to public Internet mailing lists and discussion forums covering a wide range of government finance topics to stimulate dialogue, information sharing and reinvention ideas.

Potential Use: FinanceNet could play an growing role in improving the delivery of government services by reducing information distribution costs. It could also facilitate access to government information and build the partnerships necessary to make it the electronic vehicle for intra-and inter-governmental communications, coordination, and collaboration. Governments, public and private organizations, and individuals involved in financing environmental protection could take an role in such an effort.

Advantages: As more people access and participate in FinanceNet, the sources and range of financing information will grow. FinanceNet users will be able to research topics more quickly and completely. Government users will able to network more efficiently with their peers and keep better track of innovative developments in financial management. The general public will have better access to information on the activities of their own and other governments.

Limitations: If FinanceNet grows too fast and/or too much, it may become overloaded with information and users. Information searches may be slowed by irrelevant material and heavy suer traffic. There are also a lot of people who do not have (and may never have) Internet/World Wide Web access. If information is distributed electronically, they will not be able to access it.

Reference for Further Information: National Science Foundation, 4201 Wilson Boulevard, Arlington Virginia 22230, Telephone: 703-303-1282. Most importantly, FinanceNet itself can be accessed on the World Wide Web at **http://www.financenet.gov**.

LONG DISTANCE LEARNING

Description: Long distance learning is the use of electronic technology to provide education and training to and between numerous remote locations. The electronic technologies employed in long distance learning may include one-way transmission of voice, video, and/or data or two-way sharing of information with or without video. Long distance learning can be applied in all areas of education, including primary and secondary schools, higher education, continuing education, corporate training, military and government training, and professional meetings and conferences.

Actual Use: Universities and colleges, businesses, governments, primary and secondary schools, private educational vendors, professional associations and organizations, and other groups incorporate long distance learning in their educational, training, and communications programs and activities. For example, the University of Maryland at College Park held a Teleconference on Environmental Finance in September 1995. Using satellite downlinks to sites in Tennessee and New Mexico, the teleconference was an interactive vehicle for environmental professionals to discuss options for financing environmental mandates. The American Bar Association's multi-site teleconference on brownfields redevelopment held in the spring of 1996 is another example.

Potential Use: The long distance learning/teleconferencing technique could be employed much more extensively by governments, professional associations and organizations, and educational institutions to share information on all aspects of environmental protection and finance. It could be especially valuable in helping to get the word out about new cleanup and financing technologies.

Advantages: Long distance learning permits individuals anywhere in the world with access to the necessary technical capabilities to participate in the education/training experience. When two-way communication is available, it allows participants who might otherwise not meet to share information and discuss important issues. Long distance learning can be less expensive than traveling to the primary site from which the education/training originates.

Limitations: There may not be enough individuals at some remote sites to justify the expense of electronically hooking up with the long distance learning session(s). Many remote sites may have poor technical capabilities or they may not have the technical capability to hook up at all.

Reference for Further Information: Many colleges and universities nationwide and across the world have long distance learning departments or centers. There are numerous sites on the World Wide Web accessible under the phrase "long distance learning" by using common and popular search engines such as *Alta Vista.*

RATE MODELS

Description: Rate models are expert utility rate-setting, impact fee and financial planning software for water and wastewater managers. These models prepare cost-of-service studies and multi-year budget, rate, and financial forecasts using widely accepted methods. One such model used by the network of eight Environmental Protection Agency (EPA)-supported Environmental Finance Centers (EFCs) allows users to define up to thirty-three customer groups or four rate blocks. This model automatically generates flat, minimum, uniform, and block rates, and impact fee schedules. It also performs "what if" analysis and designs inside/outside or wholesale rates, excess loading, and fire protection charges. This particular model is suited for smaller systems, and for systems with up to 100,000 connections.

Actual Use: Rate models are being used by local utility managers and finance officers across the country to set user rates and impact fees. They are also being used to examine alternative funding options, plan and schedule capital improvements, determine the impact of planned improvements on system and individual customer ability-to-pay, and forecast system budget and financial data.

Potential Use: While many medium to large communities can access and afford their own rate models and/or consultants, low cost models could help thousands of small communities nationwide to develop, set and test water and wastewater system rates and design. They also could be used by State and federal officials in financing and regulatory agencies to determine ability-to-pay, review rates and criteria, determine rates of return, underwrite and size grant/loan assistance packages and terms, and provide technical assistance to increase local financial and management capabilities.

Advantages: Small community managers can be trained to use models such as the one used by the EFCs at a low cost. These models can be easily customized by the user to meet the needs of a wide variety of system sizes. They have multiple rate design options and "smart" defaults that guide users through rate-setting and cost allocation. Variables affecting rates and finances are available for fast "what if " analysis. The model used by the EFCs comes with a user guide, QuickStart instructions, sample files, and telephone support. On-site training is available directly or through the EFCs.

Limitations: Rate models require a personal computer and laser jet printer. An Impact Fee Model must be acquired separately. Some technical training is necessary with any model.

Reference for Further Information: Information on rate models and training conducted at EFCs is available through U.S. EPA's Environmental Finance Program at 401 M Street, SW, Washington, DC 20460, Mail Code: 2731R, E-mail contact: George Ames at: **ames.george@epa.gov**. Information on the model used by the EFCs is also available from RateMod Associates, 4401-A Connecticut Ave., NW, Washington, DC 20008, Telephone: 202-237-2455, Fax: 202-237-2456.

THE ENVIRONMENTAL HOTLINE,
EARTH'S 911

Description:. The Environmental Hotline, Earth's 911, is a 24 hour telephone education service that provides environmental information specific to any "zip code" area in the United States. By dialing a toll-free phone number, anyone in the country can receive current and detailed information concerning any environmental media area on issues ranging from recycling business/household waste products - i.e., paper, plastic, oil, glass, tires, etc to pesticide product registration to air and water pollution. Through the Hotline, citizens, businesses and governments can both access and provide environmental information by dialing a 1-800 phone number.

The Hotline was established and expanded nationwide through a public-private partnership with the Environmental Protection Agency (EPA) and several other public/private partners. It is sustained through the support of private companies and organizations who benefit from the hotline and/or companies and organizations who support its positive impact on the environment.

Actual Use: The Hotline is online and available to everyone in the United States. The hotline can be accessed by dialing the toll-free phone number, "***1-800 CLEANUP***", on any telephone from anywhere in the United States. In its six years of existence, the Hotline has received more than 15 million calls nationwide.

Potential Use: The Hotline concept could be adapted geographically to any environmental and/or other subject area of interest to the general public. For example, the concept could be expanded to Mexico, other counties such as Canada, and even globally.

Advantages: The Hotline provides information free of charge without taxpayer/federal/State government funding. The fact of having one phone number to call nationwide greatly simplifies for businesses, citizens, and governments the task of searching for environmental information. The environmental benefits in terms of pollution prevention and conservation are immense. The accompanying dollar savings are also large and growing (many millions). The hotline concentrates on proactive solutions.

Limitations: In terms of expanding the hotline concept to other subject areas or countries, the basic problem is simply convincing people of the value of this new way of doing business and providing information to the public.

Reference for Further Information: Hotline Address: 5110 North 44th St., Suite L120, Phoenix, Arizona, 85018. The Environmental Hotline, Earth's 911, can be also be accessed at its World Wide Web site address: **http://www.1800cleanup.org/.** E-mail: webmaster@cleanup.org.

WORLD WIDE WEB

Description: The World Wide Web provides users on computer networks with a means of accessing information on a wide variety of subjects, from government legislation to personal home pages. The Web contains an international collection of sites, which are developed by governments, private and commercial sectors, educational institutions and individuals. The Web operates through hypertext, which provides links (connections) within the text of a document to other documents or other sites. This can be a link to text or other media, such as sounds, images or movies. A user selects/clicks on a link to access the next document. This can lead to another source of information, creating a "web".

Actual Use: The World Wide Web is the fastest growing, largest means of locating information on a topic and disseminating information on a product or service. Web users come from all levels and age groups. Grade school students and scientists use the Web for research on projects. The Web has in many cases taken the place of the printed document. It provides a central location for environmental information, such as the Environmental Protection Agency's Home Page/Web site. This site includes information on the Environmental Finance Program and other Agency initiatives, which describe their components and link to contacts and publications (see the **EPA Home Page** writeup earlier in this section). There are also search engines, such as Yahoo and Alta Vista which assist users in finding a number of different sites or documents on their subjects.

Potential Use: As more people access the Web, their sources and range of information will increase. They would be able to perform research more quickly and from one location. Users who do not have physical access to hard copies of information could access them electronically. Examples are newspapers and government reference documents (see earlier in this section the tool, **Catalog of Federal Domestic Assistance**). Information providers also could use the Web as a bulletin board to post current and upcoming events.

Limitations: There is a growing overload of information on the Web, because of unlimited access. When users conduct searches using a Net Search Engine or even an internal search engine within a site, they could get many irrelevant hits. In addition, many users have not caught up with the available and often-changing technology. There are different browsers and several levels of software and hardware. If a document is in one format, such as PDF, the user might not have the software to read it. Finally, there are still many people who do not have access to the Web. If information is only distributed electronically, they will not be able to acquire it.

Reference for More Information: Contact the access providers, such as America On Line, Netscape, or Microsoft. Use a Search Engine such as *Yahoo! (TM), Lycos*, or *Infoseek* to search for terms on the World Wide Web.

OTHER

Description:

Actual Use:

Potential Use:

Advantages:

Limitations:

Reference for Further Information:

COMPARISON MATRIX FOR ELECTRONIC SERVICES

Criteria/ Outreach Tool	**Actual Use**	**Revenue Size**	**Program Quality**	**Administrative Ease**	**Equity**	**Environmental Benefits**
***Catalog of Federal Domestic Assistance**	High	N.A.	High	High	Mod. - High	Mod.
***Environmental Finance Program Home Page**	Mod.	N.A.	Mod. - High	High	Mod.	Mod.
EFIN	Low	N.A.	Mod.	Mod.	Mod.	Low - Mod.
***EPA Home Page**	High	N.A.	Mod.	High	Mod.	Mod.
***FinanceNet**	Mod.	N.A.	Mod.	Mod.	Mod.	Low
Long Distance Learning	Low	N.A.	Low	Low - Mod.	Low - Mod.	Low - Mod.
***Rate Models**	Low - Mod.	Low.	Mod. - High	Mod.	Mod.	High
***The Environmental Hotline, Earth's 911**	High	Low	Mod.- High	High	High	High
World Wide Web	High	N.A.	High	Mod.	Mod.	Low - Mod.

High -High use (over 25 States, many localities); criteria score high (information is abundant, specific, easy to access, cost-effective to provide, and impacts projects)
Mod.-Moderate use (10-15 States, many localities); criteria score in medium range
Low-Low or rare use; criteria score poorly (printed information only, difficult to access, and not project specific)
N.A.-Not Applicable
*Star indicates best rated mechanisms