Narrowing THE GAP Environmental Finance For The 1990s

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A Progress Report of the Environmental Financial Advisory Board

MAY 1992

The Environmental Financial Advisory Board is an independent advisory committee to the Administrator of the U.S. Environmental Protection Agency. The findings and recommendations of the Board do not necessarily represent the views of the Environmental Protection Agency.

HONORABLE WILLIAM K. REILLY
ADMINISTRATOR
U.S. ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEAR ADMINISTRATOR REILLY:

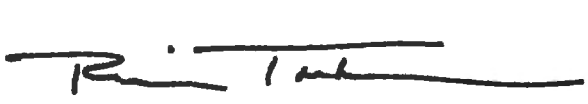
On behalf of the Environmental Financial Advisory Board (EFAB), we are pleased to provide you with this *Progress Report* on the Board's activities. The Report describes important finance issues and risks for the 1990s, lays out 14 key findings and recommendations summarized from our first four Advisory Statements, and presents EFAB's new committee structure and agenda for 1992.

EFAB's charter is to provide advice on improving policies and programs affecting the financing of environmental mandates. We believe that creative solutions exist to narrow the gap between available resources and the costs of environmental protection. To this end, we hope that the Advisories of the Board will serve the Agency as a practical "blueprint for action".

It has been a distinct honor for us to have led EFAB to this point. We would like to acknowledge and express our deep appreciation to the members of EFAB for their commitment and contribution to the mission of the Board. The value of the Board's findings and recommendations is clearly increased by the diverse backgrounds of our members.

We are also indebted to Christian R. Holmes, Acting Assistant Administrator of the Office of Administration and Resources Management, and Herbert Barrack, EFAB's Executive Director, for their unwavering support and encouragement.

Our agenda for 1992 is as exciting and challenging as the original issues the Board has addressed since its outset, and we look forward to a productive year.



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cc: **F. Henry Habicht II**
Deputy Administrator

Narrowing the Gap:
Environmental Finance for the 1990's

A Progress Report of the
Environmental Financial Advisory Board

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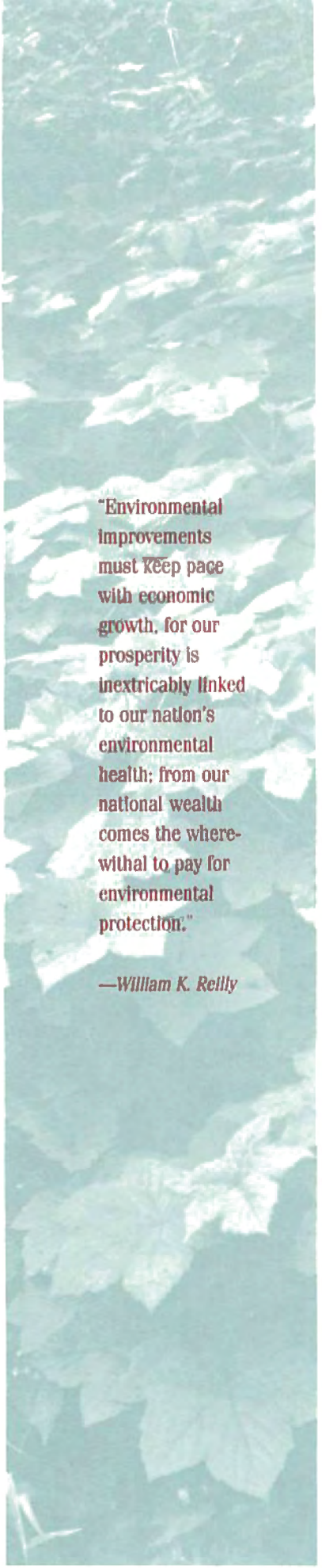


"Environmental improvements must keep pace with economic growth, for our prosperity is inextricably linked to our nation's environmental health; from our national wealth comes the wherewithal to pay for environmental protection."

—William K. Reilly

EXECUTIVE OVERVIEW

EFAB was Established to Advise the Administrator on Environmental Financing Issues

The Board, chartered in 1989 under the authority of the Federal Advisory Committee Act, is comprised of 33 members of the public and private finance community. Through meetings and workshops, the Board develops independent analysis and advice for the Administrator. These Advisories suggest policies to help ensure that all Americans invest appropriately in a clean environment and a healthy economy.

EFAB Addresses the Critical Environmental Finance Challenges of the 1990s

THE ENVIRONMENTAL FINANCE GAP IS WIDENING

The real costs of environmental protection are growing rapidly. Yet our nation's ability to meet these rising costs is falling behind — *and the financing gap is widening.* Financial constraints threaten attainment of national environmental goals. At risk are the health of ecosystems, human health, and community well-being — in short, the quality of life in America.

THE BOARD OFFERS REALISTIC SOLUTIONS TO CLOSE THE GAP

The Board believes we can close the environmental financing gap by pursuing actions that:

- *Lower the costs of environmental protection* — by removing financial and programmatic barriers that raise costs and by improving the efficiency of needed investments;
- *Build state and local financial capacity* — to carry out environmental mandates; and
- *Increase public and private investment* — in environmental facilities and services.

LOWER THE COSTS OF ENVIRONMENTAL PROTECTION

The Board has examined several policy options that would lower state and local costs to finance federal environmental mandates. The Board concludes, for example, that reclassification of all state and local environmental bonds as governmental bonds, provided proceeds are used to finance public-purpose environmental facilities, would directly lower state and local costs of borrowing and increase state and local investments. The Board also recommends the use of economic incentives to promote pollution reduction.

Build State and Local Financial Capacity to Carry Out Environmental Mandates

Building state and local capacity to self-finance environmental investments constitutes a powerful investment in our nation's future. The Board has examined a number of ways to strengthen and expand this capacity. Policymakers could examine, for example, the feasibility of expanding the wastewater treatment State Revolving Fund (SRF) program to finance investments in other media, or establishing new institutions, such as federal or state trust funds to help finance investments in multiple environmental media. The use of bond banks could also be expanded, for example, to facilitate investments by small communities.

Increase Public and Private Investment in Environmental Facilities and Services

Finally, the Board investigated ways to increase state, local, and private investment in the environment. It examined the merits of incentive programs and other options to lower barriers to successful investment efforts. Barriers to private sector involvement in wastewater treatment could be lowered, for example, if EPA broadened its interpretation of federal grant policies. The Board recognizes that, just as the environmental protection paradigm is shifting from controlling discharges to reducing the generation of pollutants, the financing paradigm must evolve from the concept of spending to one of investment.

The Board's Work is Far From Finished

In the coming year, the Board will continue to investigate several options developed in 1991. We will also look at new ways to close the financing gap, including:

- ways to pay for environmental mandates;
- opportunities to finance environmental improvements in the international arena;
- initiatives to educate the public and decision makers on issues of environmental finance; and
- further work on water financing strategies.

The EFAB is pleased to serve the Administrator, Congress, and all public and private stakeholders in our nation's environmental future. In 1991, we began a fundamental rethinking of the role of public and private finance in attaining national environmental objectives. With our mission now fully aligned with EPA priorities, EFAB looks forward to continued service and to strategies that promote healthy natural systems and a strong economy.

"Paying for environmental programs presents us with one of the major challenges of the 1990s. The cost of environmental protection will continue to grow significantly in the coming years. And consequently, the country needs to make the effort, starting now, to look past daily problems and crises to develop long term funding strategies."

—William K. Reilly

The EFAB brings to the forefront of environmental policymaking the issue of finance — critical to achieving our nation's environmental goals.

AN INTRODUTION TO THE ENVIRONMENTAL FINANCIAL ADVISORY BOARD

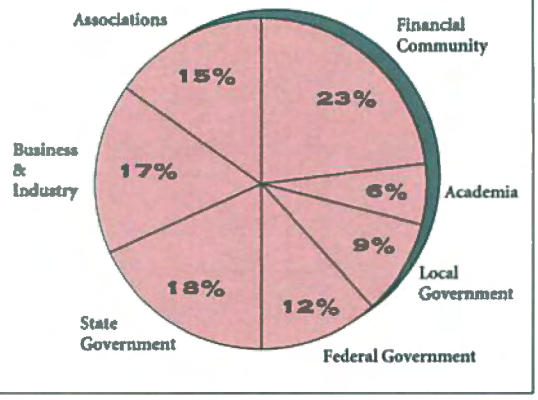
Administrator William K. Reilly Established the Environmental Financial Advisory Board in 1989

The Environmental Financial Advisory Board (EFAB) is an independent advisory committee authorized under the Federal Advisory Committee Act (FACA). This is the Board's first progress report on its findings and recommendations, which have been presented to the EPA Administrator in four separate advisory statements. This report also previews the Board's planned 1992 activities including an agenda of issues we intend to consider.

WHO IS ON THE BOARD?

The Board has 33 members drawn from the public and private sectors. Membership is for one year subject to renewal. The members come from a wide variety of backgrounds with a common interest in environmental finance. Board members represent federal, state and local government, national environmental organizations and trade associations, academia, banking and finance, and business and industry.

BOARD COMPOSITION 1992



Richard Torkelson, Deputy Commissioner for Administration of the New York State Department of Environmental Conservation, serves as Chair of EFAB. Frieda K. Wallison, a Partner with Jones, Day, Reavis & Pogue, is Vice Chair. Herbert Barrack, EPA Assistant Regional Administrator for Policy and Management in Region II, is the Board's Executive Director and designated federal official.

EPA Deputy Administrator F. Henry Habicht II appoints the members of the Board and the Executive Director. The Board receives general support and guidance on issues of interest to EPA from the Office of Administration and Resources Management, headed by Acting Assistant Administrator Christian R. Holmes.

How Does EFAB Conduct Its Work?

Through public meetings, workgroup sessions, and field hearings, the Board develops analysis and advice in the form of Advisory statements for the EPA Administrator. The Advisories offer independent expert views on environmental finance issues and opportunities.

The Board meets at least twice a year, usually in Washington, D.C. EPA announces all meetings in the Federal Register as required by FACA. During its first two years, EFAB had four standing workgroups:

- *Economic Incentives* — Chaired by Frieda K. Wallison, Partner, Jones, Day, Reavis & Pogue;
- *Small Communities Financing Strategies* — Chaired by Elizabeth Ytell, Director, Water-Wastewater Division, Rural Community Assistance Corporation;
- *Private Sector Incentives* — Chaired by Warren W. Tyler, Vice President, State Savings Bank; and
- *Public Sector Finance Options* — Chaired by George A. Raftelis, Partner, Ernst & Young.

Workgroups meet as part of the full Board meetings and separately, as necessary. For example, the Small Communities workgroup held a field hearing in Albuquerque, New Mexico to gather important grass roots information for its Advisory. Senator Pete V. Domenici of New Mexico, a Board member, chaired this highly successful meeting.

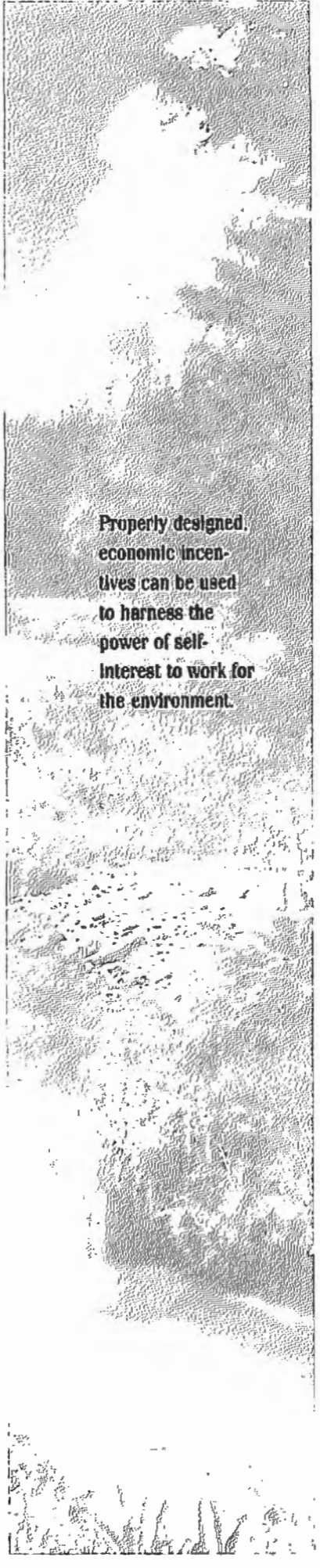
Three Goals Drive the Board's Work

Since 1970, the real cost of environmental protection has grown significantly. Neither the public's ability nor its willingness to pay for this protection has kept pace with its cost — *the gap is widening.* Environmental statutes of the 1980s and 1990s suggest that the gap will continue to grow well into the next century, reaching crisis proportions if current policy is not changed.

In response, the Board has sought three ways to close the environmental financing gap facing the nation. We can:

- Lower the costs of environmental protection — by removing financial and programmatic barriers that raise costs and by improving the efficiency of needed investments;
- Build state and local financial capacity to carry out environmental mandates; and
- Increase public and private investment in environmental facilities and services.

An increasing burden has been placed on state and local governments without a concurrent increase in fiscal capacity to handle the new financial responsibilities. Policymakers need to lower the costs state and local governments face or build their capacity to meet these financing challenges.



Properly designed economic incentives can be used to harness the power of self-interest to work for the environment.

Lower the Costs of Environmental Protection

The costs of maintaining a clean environment are rising rapidly. Moreover, several financial and programmatic barriers to successful financing raise costs even higher. Examples include:

- *The 1986 Tax Reform Act* — that corrected abuses but also raised financing costs for public-purpose environmental facilities;
- *State and local procurement laws* — that may prevent localities from selecting the most cost-efficient environmental service providers; and
- *A lack of sufficient credit history in small communities* — which prevents them from obtaining capital at reasonable costs.

Policy changes can lower many of the barriers and hence costs of financing environmental projects.

Build State and Local Financial Capacity to Carry out Environmental Mandates

Even as costs rise steadily, the growth in state and local capacity to finance new environmental mandates falls behind. Policymakers must focus on building and strengthening state and local governments' ability to meet the financing challenges they face.

Increase Public and Private Investment in Environmental Facilities and Services

Costs can only be lowered so far. Maintaining and improving the nation's environment ultimately will require substantial investments over the coming years. As federal contributions decline, state and local governments, and the private sector will need to increase their investments as they shoulder a larger share of these growing costs.

Traditional command and control methods of ensuring investment in environmental facilities are insufficient. State and local governments are having difficulty in implementing federally mandated environmental programs, or are delaying investments due to lack of funds.

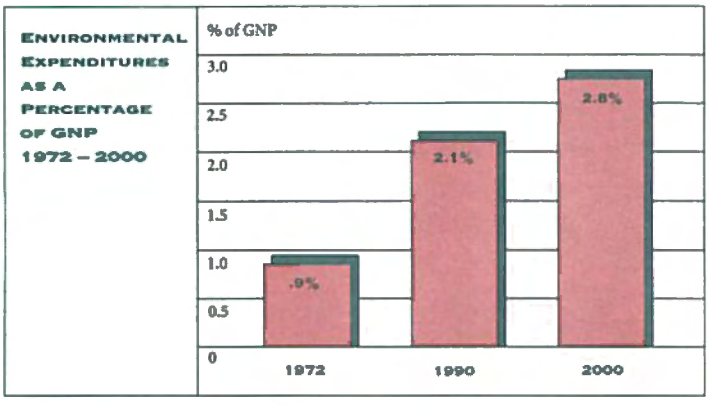
Economic incentives need to be developed to encourage states, localities, and the private sector to increase productive investments in environmental facilities. The returns from environmental investments must be shown to yield real dividends in health, the environment, and the economy.

The Board has Addressed the Key Environmental Finance Challenges of the 1990s

EFAB has addressed the main environmental financing problems facing state and local governments today. Through its advisory role to the Administrator and the EPA, the Board has drawn attention to the growing gap between the costs of environmental protection and our nation's ability to meet those costs and the critical need to make environmental financing issues a priority for EPA and Congress in the 1990s.

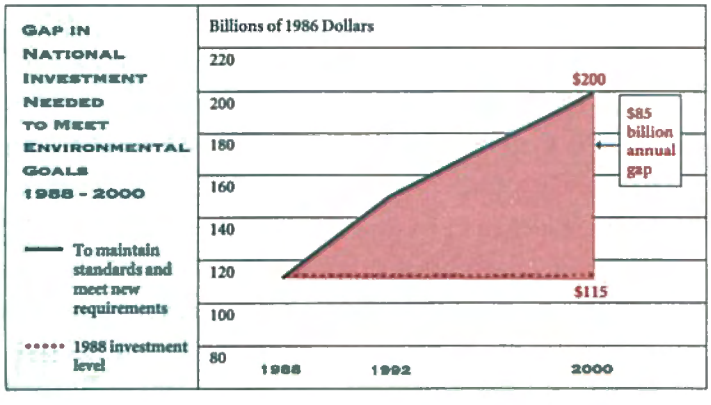
ENVIRONMENTAL PROTECTION COSTS ARE RISING

Total public and private environmental expenditures, as a percentage of gross national product (GNP), grew from 0.9 percent in 1972 to 2.1 percent in 1990. In that same period, the GNP grew from $3.0 to $4.7 trillion (in 1986 dollars). By 2000, environmental expenditures are projected to rise to 2.8 percent of GNP, estimated to be $7.1 trillion.



THE FUNDING GAP IS GROWING

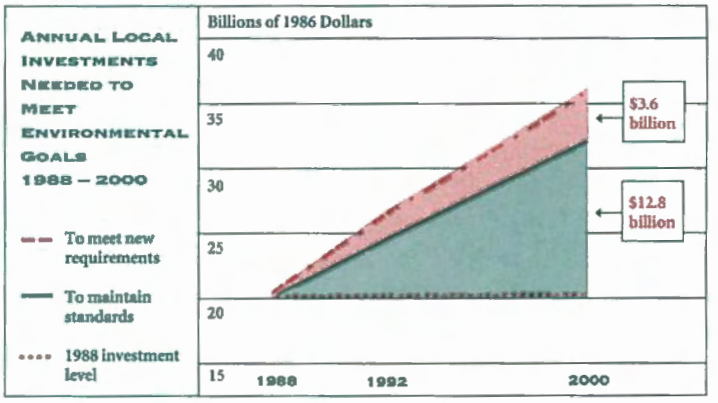
The gap between current resources and the investments needed to maintain existing standards and meet new requirements is increasing. By the year 2000, total annual environmental spending requirements (public and private) will be about $200 billion, compared to a 1988 level of $115 billion. This huge difference can be met only through greater efficiency, expanded public and private investment, and increased state and local capacity to implement programs.



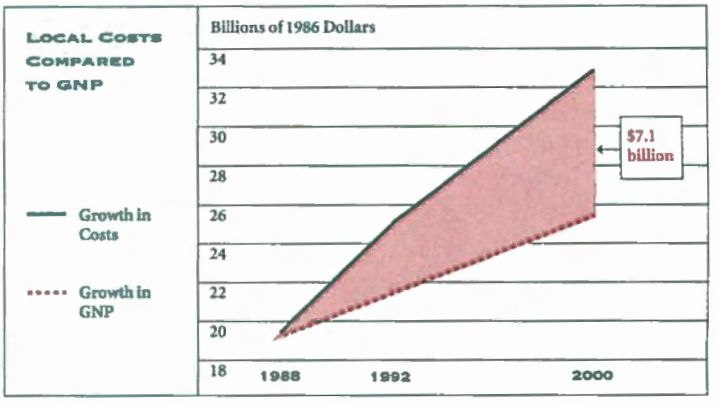
In the final decade of this century, the nation faces serious financial constraints that may prevent attainment of national environmental goals. At risk are the health of ecosystems, human health, and community well-being — in short, the quality of life in America.

Local governments will not even be afforded the luxury of maintaining environmental expenditure as a percentage of real income. The environment's share of the pie will have to shrink.

At the local level, the funding gap is even more dramatic. In the year 2000, local governments will have to spend an extra $12.8 billion per year, or 65 percent more than they did in 1988 just to maintain current levels of environmental quality. They will need to spend at least another $3.6 billion per year to comply with new regulations In all, communities may need to spend 83 percent more per year by the year 2000.



Even if state and local governments could borrow enough to pay for capital investments, annual cash flow requirements to repay their debts will outstrip their financial capacity. Between now and the end of the century, local governments will need to raise 32 percent more money to cover operating and debt service costs. This amounts to an increase in cash requirements of over 3.5 percent per year. Yet over the same period, U.S. GNP is estimated to grow by only 2.37 percent per year and population to grow by only 0.66 percent per year.



IMPACTS ARE HARSHEST FOR SMALL COMMUNITIES

The nation's smallest communities will be hit especially hard. For communities of less than 500, the annual cost per household of environmental protection will double, from 2.5 percent of household income in 1987 to 5.6 percent by the year 2000. At the same time, federal environmental aid to local governments is declining, leaving communities an increased share of a growing financing burden.

Historically, national debates on environmental infrastructures have paid relatively little attention to "how to pay" or financing issues. Given the magnitude of environmental funding needs, policymakers in the 1990s will inevitably have to confront the growing gap between future needs and currently available resources.

The Nation Needs to Improve Its Environmental Infrastructure Financing Policies

America's lack of a viable national strategy for financing environmental investments manifests itself in several areas:

- *Tax and Environmental Policies Should Complement Each Other* — the 1986 Tax Reform Act, while promoting greater tax equity, increased the costs of financing environmental facilities;
- *Federal Grant Policies Should be More Flexible* — inflexible federal grant policies inhibit private sector participation in the financing of environmental facilities;
- *State and Local Administrative Capacity is Eroding* — federal participation in the fiscal partnership with state and local governments is declining without sufficient institution building at the state and local level to take its place;
- *The Special Financing Problems of Small Communities Have Been Largely Underestimated* — small communities cannot afford or lack access to the financial markets. Part of the problem is structural — the fixed costs of bond issues are higher as bond issues are small; unit costs of service provision are high as small facilities cannot achieve economies of scale in operation; the user base may be too small to allow full-cost pricing, and a low credit rating (or lack thereof) discriminates against small communities in the debt markets; and
- *The Environmental Equity of Economically Disadvantaged Communities Must Be Resolved* — many urban areas face serious environmental and public health risks, making neighborhoods less livable and discouraging economic growth and development.

This Exacerbates the Fiscal Crisis Already Taking Place at the State and Local Level

With few exceptions, governments at all levels are in fiscal crisis. The lack of a national environmental financing policy will aggravate this already difficult situation. In 1991:

- Thirty-five states reported operating shortfalls or accumulated deficits;
- One in four city governments faced budget deficits in excess of 5 percent — more than twice as many cities as in 1990; and
- Even states' "rainy day" funds are being depleted. State budget stabilization funds totalling $4.15 billion in 1989 fell to approximately $1.74 billion by the end of 1991.

The current fiscal crisis does not leave much promise for bridging the state and local environmental funding gap in the future. In fact, these fiscal trends exacerbate the problem; in this climate the capital markets are growing increasingly concerned over state and local credit worthiness, further limiting the ability of these government units to issue bonds and secure loans.

The federal government must be a full partner in the near and long term national effort to increase investment in public-purpose environmental infrastructure.

Local Governments are Forced to Raise Rates Dramatically

The results are rate shock and an undue burden on households. Rate shock is translating into rate resistance and the postponement or cancellation of environmental projects. The ultimate result is noncompliance with federal environmental mandates. Economically disadvantaged households may find they are unable to pay for water, sewer, and solid waste management services, and hence face an increasing risk to public health.

Inadequate public investment in environmental infrastructure is translating into a reduction in the productivity of the private economy. Empirical evidence suggests that insufficient public investment over the past two decades can account for as much as 60 percent of the decline in the growth of private productivity during that period. The result is a decline in our international competitiveness. At the local level, loss of product sales may mean plant closures, loss of jobs, and loss of local tax revenues.

Rate Shock — Between 1986 and 1991, water and sewer rates in New York City more than doubled, although water consumption rose only 6.5 percent and inflation grew only 28.5 percent. In the Boston area, average household water and sewer rates are expected to rise from about $500 per year in 1992 to more than $1600 per year by 2000. Rate shock can severely affect small communities as well. For example, in Ironwood, Michigan (pop. 7741), average annual sewer rates rose 44.6 percent per year from 1984 to 1989 to equal over $454 per household. Rates are expected to rise sharply in many communities around the country.

Rate Burden — According to an extensive study of the effects of rising sewer and water rates on economically disadvantaged households in Eastern Massachusetts, inability to pay will result in an increasing incidence of service shutoffs, especially among disadvantaged households. The combined cost of these services plus home heating will consume 29 percent of household income for such families by 1998. According to the Boston Water and Sewer Commission, city water and sewer bills have risen 39 percent in the past two years, and over the same period, water shutoffs tripled as a result of nonpayment of water bills.

A Weakened Private Economy — In the absence of public investment in adequate environmental facilities, growth in the private economy is constrained. Consider, for example, the benefits to the private economy of adequate public facilities. A beverage producer using publicly supplied water from a large, central facility, pays less per gallon of water and has greater productivity than would result from a comparable producer self-supplying water on a smaller scale. The economy benefits through higher private profits, enhanced public tax revenues, or lower prices to the consumer. Public investments, such as enlargements of wastewater treatment plants, allow private factories to operate at higher capacity with no net new investment in capital plant. This, in turn, increases the productivity of private capital in the short run and stimulates new private investment in the long run.

Everybody loses with loss of primacy— states, utilities, consumers, EPA.

States are Having Difficulty Implementing Federally Mandated Programs

States environmental programs are caught in a vise between more costly requirements and insufficient resources. The situation appears to be worsening. Some states are seriously considering the return of federally mandated programs to the federal government. Others are resisting taking on new programs without additional federal funding. Many have sought to develop dependable alternative funding sources, primarily via increased use of fees. However, such funding sources are themselves at best supplementary and often meet stiff resistance.

The reluctance or inability of states to run federally mandated programs themselves not only has an impact on the federal government but also affects local compliance as states cut their enforcement activities. It encourages local noncompliance as an environmental investment option.

EFAB Has Delivered Four Advisories to Date

In response to the growing crisis in environmental financing, the Board has spent considerable time developing viable components of a national environmental financing strategy. Its proposals provide a starting point for a national debate. That such a debate takes place is critical, for in the absence of a credible and workable national environmental financing strategy, our nation risks losing many of the air, land, and water quality gains that have been achieved over the past 20 years. EFAB has delivered four Advisories for the Administrator's consideration:

- *Incentives for Environmental Investment: Changing Behavior and Building Capital* — which looks at tax and other economic incentives to lower the public costs of environmental investments as well as at ways to improve EPA's environmental financing capabilities;
- *Small Community Financing Strategies for Environmental Facilities* — which focuses on the special problems of small communities and suggests actions to increase their access to affordable capital;
- *Private Sector Participation in the Provision of Environmental Services: Barriers and Incentives* — which considers federal, state and local opportunities to ease restrictions on private sector participation in the financing of environmental investments; and
- *Public Sector Options to Finance Environmental Facilities* — which examines ways to increase the knowledge base of EPA and Congress regarding the costs of environmental protection as well as institutional changes and initiatives that would speed investments in environmental facilities.

The Board is changing the perception of environmental spending from dollars spent with few returns to investments yielding dividends in health, the environment, and our nation's economy.

In addition to the Advisories, in May 1991, the Small Community Financing Strategies Workgroup held a field hearing in Albuquerque, New Mexico. The New Mexico Environment Department hosted the field hearing and Senator Domenici was the honorary chair. The Workgroup heard local officials discuss a range of small community environmental infrastructure financing issues. Other speakers discussed additional small community financing issues during an open session. The Workgroup and the speakers found the field hearing a useful forum for exchanging ideas about small community financing problems.

Sound, Viable Alternatives are Available to Meet the Financing Challenges Ahead

Through its Advisories, the Board has focused on three ways to close the environmental financing gap. The Advisories offer practical policy initiatives that would help:

- Lower the costs of environmental protection — by removing financial and programmatic barriers that raise costs and by improving the efficiency of needed investments;
- Build state and local financial capacity to implement environmental programs; and
- Increase public and private investment in environmental facilities and services.

Lower the Costs of Environmental Protection

The Board investigated a number of opportunities for lowering the costs of environmental protection:

- *Reclassify all state and local environmental bonds as governmental bonds provided proceeds are used to finance public-purpose environmental facilities.* This reclassification would lower the costs of borrowing for state and local governments;
- *Broaden the use of economic incentives to prevent pollution. These incentives could include a change in depreciation schedules in the tax code, the imposition of waste taxes, or the provision of tax credits for environmental investment.* Such incentives would lower investment costs and encourage pollution reduction; and
- *Improve coordination among federal small community financial assistance programs to maximize flexibility and efficiency in developing financing strategies for small communities.* This coordination would help small communities pursue the least-cost solution to their environmental investment needs.

Tax exempt municipal bonds are the basic tool used by states, cities, counties, and towns to pay for needed public facilities and services. This ability to sell debt with interest exempt from federal income taxes is critical to state and local borrowers.

Build State and Local Financial Capacity to Carry Out Environmental Mandates

The Board examined several policy initiatives that would help build and strengthen state and local financing capacity, enabling states and localities to successfully meet the financing challenges they face. The Board developed six options that (1) recognize the need to institutionalize, at the federal level, the critical role financing plays in the achievement of environmental goals, and (2) provide initiatives to facilitate state and local financing efforts. The Board recommends that policymakers:

- *Strengthen the role of financial analysis in EPA's planning, budgeting, and regulatory processes.* This would augment the Agency's capacity to provide administrators, legislators, and state and local officials with advice on environmental finance;
- *Take regular inventories of the costs and impacts of complying with national environmental mandates.* Regular inventories would expand Congress' understanding of the financing challenges faced by state and local governments and help Congress select appropriate environmental goals. It also would help state and local governments allocate limited funds to competing environmental priorities;
- *Improve the effectiveness of the SRF program in financing wastewater treatment through both administrative and legislative changes to the Title VI SRF program.* This would result in the targeting of funds to small and economically disadvantaged communities, facilitating investment by these communities and helping them overcome the financing barriers they face;
- *Evaluate the feasibility of establishing new mechanisms for the disbursement of financial assistance, including expansion of the SRF to other media and establishment of a national trust fund or state trust funds.* Expanding the SRF program would help local governments overcome capital constraints they currently face in these media by providing low-cost loans. A national trust fund or state trust funds could provide assistance by offering grants to economically disadvantaged communities and additional capital to state and local infrastructure financing agencies. In both capacities, this kind of institution would increase the availability of capital to local governments for environmental investment;
- *Increase the use of bond banks to improve access to the bond market for small communities.* This would help small communities overcome the special barriers they face in trying to issue debt. Technical assistance could be provided to states without bond banks to assist them in developing this type of institution. Alternatively, EPA could investigate opportunities for creating regional or multi-state bond banks. The development of either state or regional bond banks would facilitate small community issuance of tax-exempt bonds for environmental purposes; and

To mitigate the impending crisis in environmental financing, the federal government can add to its roles of regulation and enforcement that of being a catalyst to effective transition management.

Congress needs to understand the consequences of its policy actions — the costs of a command and control regulatory process are high indeed.

When banks learn to more effectively underwrite and manage the risk associated with environmental protection, everyone benefits.

- *Use fee systems to raise revenues for environmental investments.* This would directly encourage and stimulate environmental investments.

Increase Public and Private Investment in Environmental Facilities and Services

Once the costs of environmental protection have been lowered and the financial capacity of state and local governments bolstered, our nation is still left with a need to increase our investment in the environment in order to achieve national environmental goals. Such investment must come from state and local governments and the private sector.

Investment can be increased by focusing efforts to encourage traditional players to invest, or by providing attractive opportunities for new entrants in environmental investment — in particular — by inviting the participation of the private sector. The Board investigated a number of options for encouraging both increased activity on the part of state and local governments, and new activity on the part of the private sector. The Board recommends that we:

- *Interpret federal grant policies more flexibly to lower the barriers to private sector investments in publicly owned treatment works.* A more flexible interpretation of federal grant policies is critical to make the provision of wastewater treatment more attractive to private parties;
- *Promote full-cost pricing of environmental services to reflect the true costs of providing those services.* Full-cost recovery would remove a fundamental barrier to private sector participation;
- *Provide information and technical assistance to reduce the real and perceived risks associated with private investment in public environmental facilities.* This would encourage greater private lending for environmental projects;
- *Expand EPA's demonstration projects for public-private partnerships involving the financing of environmental facilities or services, technical assistance to local governments in forming partnerships, and possibly funding to help over-come start-up costs associated with public-private partnerships in environmental services.* This option is essentially educational, and would provide guidance for public and private partners looking to work together to provide environmental services; and
- *Encourage states and localities to modify laws that are disincentives to private sector participation.* This too would foster private sector participation in the provision of environmental services.

Each of the Board's 14 recommendations are presented in greater detail in Appendix A. Each recommendation is structured to help increase the capacity to finance needed environmental investments that will preserve and protect the quality of life in America.

EFAB's Agenda for 1992

EFAB's work is far from finished. In the coming year, the EFAB intends to expand on the policy options it introduced in 1991. It will also consider new options for meeting the environmental financing challenges facing EPA and our nation as a whole. EFAB will have three committees in 1992, each charged with two or more objectives. These committees will concentrate on:

Paying for Environmental Mandates

- *Small and Economically Disadvantaged Communities* — Develop effective near-term actions to improve financial assistance programs directed to small and economically disadvantaged communities.
- *State and Local Capacity* — Support the work being undertaken by EPA's State and Local Capacity Task Force and identify feasible sources of funds, financial institutions, and mechanisms that will help build state and local capacity. The committee will serve as a forum for review of the report currently being produced by the Alternative Financing Mechanisms team of the Task Force.

International Issues

- *Border Communities* — Increase the availability of environmental facilities in communities on either side of the U.S./Mexican border by identifying ways to improve environmental financing to these communities.
- *East European Trade Show and Conference* — Develop a strategy to market U.S. expertise in environmental finance and U.S. knowledge of financial institutions at a trade show and conference planned for Eastern Europe in 1993.

Education and Communication

- *Costs of Environmental Mandates* — Examine ways to expand state, local, and regional knowledge of the costs and effects of environmental mandates.
- *Capital Providers and Community Leaders* — Educate capital providers and community leaders about the regulatory process to increase the former's willingness to lend for environmental investments, and to inform the latter of the benefits of investing in environmental facilities.
- *Environmental Finance Centers* — In concert with the work involving ways to build state and local capacity, the committee will help develop plans to establish environmental finance centers in EPA regions, affiliated with land-grant universities.

Issues like the greenhouse effect, acid rain, the thinning of the ozone layer, toxic wastes, and water quality have moved from the U.S. to the international arena. The United States is now playing a key role in fostering international cooperation on global environmental concerns.

Other Board Activities

EFAB also will support work currently being undertaken by the Clean Air Act Advisory Board's Subcommittee on Federal/State Relations in coordination with the Office of Air. The Board will provide advice on the financing of state air programs in response to new requirements mandated by the 1990 amendments to the Clean Air Act.

The Environmental Financial Advisory Board is pleased to serve EPA, Congress, and state and local governments. Through its advisory role it can help bring issues of environmental finance to the forefront of environmental policy. Attention to these issues is crucial to ensure that our nation's environmental standards are maintained for generations to come.

"Reinvigorating our environmental infrastructure will require an unprecedented degree of communication and cooperation among all levels of government, the private sector, conservation groups, and citizens. The job is big, new money is hard to find. And, thus, it has never been more important to challenge the creativity and dynamism of all these parties to contribute new, vitally needed ideas and energy to solve America's environmental problems."

—William K. Reilly

APPENDICES

Appendix A: Fourteen Key Findings and Recommendations

The Board's 14 recommendations are presented in greater detail below. Each recommendation will help close the environmental financing gap facing the nation by lowering the costs of investment, building state and local capacity, or by increasing state and local investment in environmental facilities. In short, each will help to preserve and protect the quality of life in America.

Reclassify All State and Local Environmental Bonds as Governmental

Current Policy

The 1986 Tax Reform Act, while promoting greater tax equity and ending abuses within the tax system, had the unintended effect of increasing the cost of financing public-purpose environmental facilities. The Act:

- Required state and localities to offer higher tax-exempt interest rates on some types of bonds;
- Narrowed the market for tax-exempt bonds by eliminating certain types of large-volume institutional buyers; and
- Limited the volume of private-activity, tax-exempt bonds that states can issue each year, which resulted in delayed financing for environmental projects or forced states and localities to issue public-purpose bonds as taxable bonds, accompanied by higher rates.

The Board's Alternative

EPA could urge Congress to reclassify all state and local environmental bonds as tax-exempt governmental bonds, if the proceeds of the bonds are used exclusively to finance the provision of public-purpose environmental services.

The Result

Reclassifying public-purpose bonds for environmental projects would:

- Save state and local governments billions in financing costs;
- Increase investment as it would increase the volume of environmental bonds issued; and
- Yield a net gain in federal tax revenues by the year 2000 — Losses would be offset by private sector productivity (and hence profitability) gains resulting from increased investment in environmental infrastructure.

Broaden the Use of Economic Incentives and Market Alternatives to Prevent Pollution

Current Policy

Few economic incentives exist to encourage pollution prevention. The U.S. tax code treatment of depreciation schedules, for example, actually favors "end-of-pipe" treatment over pollution prevention and may be biased against investments in pollution reduction equipment. The code's treatment of deduction eligibility for plant and equipment allows deductions for equipment that discharges wastes in violation of permitted levels, as well as expenses arising from payment of punitive damages in connection with environmental malfeasance. Accelerated depreciation allowances are limited to equipment that controls rather than reduces or prevents pollution. Finally, the code's depreciation methods for extracted raw materials encourages the use of toxic raw materials at the expense of less toxic substitutes.

There are few direct incentive programs either. There is no federal and few state hazardous waste tax programs, and the use of credits to encourage the purchase of pollution reduction or conservation equipment by homeowners or businesses is almost nonexistent.

The Board's Alternative

There are several policies that could reduce pollution or prevent its generation, ranging from information transfer and technical assistance, to regulatory mandates, to economic incentives. The Board endorses both voluntary and compulsory pollution prevention policies, including:

- Imposing economic penalties, such as effluent fees or hazardous waste taxes, to reduce the volume or toxicity of discharges — Taxes or fees could be levied on inputs, such as feedstock taxes, or outputs, at either the point of generation or disposal;
- Offering tax or other credits for investment in waste-reducing technologies or activities — Credits could be offered for the purchase of pollution reduction equipment or for research and development efforts into pollution reduction technologies and methods; and
- Removing biases in the U.S. tax code that inhibit waste reduction.

The Result

The imposition of financial penalties for pollution would raise revenues and discourage pollution, as the charge could be designed to reflect true production costs, which include the disposal costs of pollutants generated. Tax credits directly lower the cost of investing in pollution reduction equipment. Finally, revision of the tax code's treatment of deduction eligibilities, accelerated depreciation for plant and equipment, and its use of raw materials depletion allowances for extracted toxic materials would lower financial barriers to investment in pollution reduction equipment and encourage substitution of less toxic raw materials.

Improve Coordination Among Federal Small Community Financial Assistance Programs

Current Policy

While there are a myriad of federal financial assistance programs to assist small communities in financing their environmental programs, no network connects these programs to one another. As a result, small communities may not be able to access or use effectively, assistance delivered in a fragmented fashion. Within EPA, for example, small community activities traditionally have been carried out separately by the various environmental media offices.

The Board's Alternative

The Board examined several existing programs to determine potential coordination opportunities. It determined that EPA should take a lead role in marshalling multiple funding sources for small community environmental facilities, including:

- Developing a catalogue highlighting the financial services and programs available to small communities in complying with environmental mandates;
- Convening a roundtable of representatives of small community financial assistance programs to discuss and develop small community initiatives; and
- Improving coordination between the SRF program and the Farmers Home Administration Water and Waste Disposal Loan and Grant program at the state level and providing the latter with specific information on small community needs.

The Result

Improving the exchange and availability of information on small community financial assistance programs, among federal agencies and within EPA itself, would help small communities develop cost-effective financing strategies. It would facilitate their use of the most appropriate funding sources and help them leverage available funds.

Strengthen the Role of Financial Analysis in EPA's Planning, Budgeting, and Regulatory Processes

Current Policy

The EPA Administrator has articulated a series of themes intended to guide the Agency's environmental programs. The implementation of these priorities and the realization of benefits from these initiatives will require major investments by all levels of government. EPA must strengthen its own capacity to provide a financial perspective on environmental goals for the Agency to remain a leader among federal agencies, the Congress, states, localities, and the private sector in developing the capacity to finance environmental services.

The Board's Alternative

The Agency could improve awareness of the importance of environmental finance in all media and increase its interaction with decision makers and legislators on issues of financial capacity by:

- Adding environmental finance to its list of priorities, thus building its capability to contribute to administrative and legislative debates on financing environmental public works;
- Strengthening and expanding its role of financial analysis in rulemaking by amending Regulatory Impact Analyses and Regulatory Flexibility Analyses to include analyses of affordability of new rules and the development of fiscal plans to assure that compliance is not impeded by questions of ability to pay; and
- Strengthening EPA's capacity to provide advice on environmental finance to administrators and legislators.

The Result

Institutionalizing environmental finance by integrating an environmental finance ethic in EPA's day-to-day activities would send a strong message to all senior managers about the importance of ensuring that adequate financing for environmental investments is available. It would ensure that those concerned with fiscal and tax policies fully understand the effects that their proposals may have on seemingly unrelated areas of environmental policy, and it would allow EPA to effectively assist state and local governments trying to finance environmental investments with limited resources.

Take Regular Inventories of the Costs and Impacts of Complying with National Environmental Mandates

Current Policy

The joint EPA/State biennial Needs Survey provides information about the cost of complying with federal mandates for wastewater treatment. Comparable information is not required by statute and is unavailable for drinking water or solid waste programs. Policymakers are thus generally unaware of the costs they impose on state and local governments in complying with federal mandates.

The Board's Alternative

The Board identified several ways of communicating the costs of complying with federal environmental mandates including:

- Expanding the biennial Needs Survey to include estimates of related water quality needs such as stormwater runoff controls, nonpoint source programs, and estuary management activities. In addition, EPA could initiate separate but similar needs surveys for community water supply and municipal solid waste management facilities; and
- Annualizing EPA's report *Environmental Investments: The Cost of a Clean Environment* (the Cost of Clean Report), which covers all media and projects capital as well as operating and maintenance costs over a 10-year period for several compliance scenarios.

The Result

Taking regular multi-media inventories of the costs and impacts of complying with national environmental mandates would inform Congress of the financial consequences of its policy actions. It would also provide a basis from which to measure progress in achieving environmental goals. In addition, it would help states administer various geographic initiatives, including, for example, the Great Lakes Initiative, the Gulf of Mexico Program, the Chesapeake Bay and Puget Sound Programs, and the Long Island Sound Program.

Improve the Effectiveness of the SRF Program in Financing Wastewater Treatment

Current Policy

Overall, the SRF program has proven a successful model for financing wastewater treatment. However, not all wastewater treatment needs are being met, especially in the case of small and economically disadvantaged communities. This is due in part to the structure of the SRF in terms of project rankings, federal requirements, requirements on the part of potential loan recipients, and the need to ensure the financial integrity of the funds.

The Board's Alternative

The Board examined several administrative and legislative changes that could be made to the SRF program to improve its effectiveness in reaching more communities, especially those that are small or economically disadvantaged, including:

- Seeking flexibility in the 4-percent restriction on use of funds, to allow states to use some portion of overall fund assets for program administration after 1994, as several states could otherwise face temporary deficits in their budgets for administration;
- Allowing the SRF to support public-private partnerships for wastewater services;
- Funding the SRF program at the authorized levels for FY 1993-94 and appropriating the difference between those amounts authorized under Title II and Title VI, and those actually appropriated to date; and
- Seeking legislative changes under the Title VI SRF program — This could include creating special set-asides for particular loan recipient groups, extending the SRF loan term beyond 20 years where recipients may have difficulty in paying back the loan, or creating a separate revolving fund for small and economically disadvantaged communities in water quality, drinking water, and solid waste management.

The Result

The administrative changes in the SRF program would facilitate lending to all communities for wastewater treatment. The legislative changes to the program would target small and economically disadvantaged communities for assistance and help ensure that they do not lag behind other communities in protecting their environment.

Evaluate the Feasibility of Establishing New Mechanisms for the Disbursement of Financial Assistance

Current Policy

While the SRF program provides low-cost loans for financing wastewater treatment programs, capital assistance is needed in other media as well, such as drinking water and solid waste management programs. This is especially the case in small and economically disadvantaged communities. Further, while state infrastructure authorities, including SRFs, provide financial assistance for a myriad of programs, the speed with which we reach our environmental goals would be enhanced if their capacity to offer financial assistance were expanded.

The Board's Alternative

The Board examined several options to expand and improve our nation's institutional capacity to provide financial assistance for environmental programs. Two alternatives could be implemented in conjunction with one another or individually. The Board recommends EPA evaluate:

- Expanding the eligibilities of the SRF program for economically disadvantaged communities. This could be extended to other media, contingent on continued federal funding beyond the current authorization period; and
- Development of a national trust fund or state trust funds. These could provide financial assistance to state and local environmental programs and to regional environmental planning and regulatory commissions, as well as provide liquidity to state environmental facility financing authorities, including the SRF.

The Result

Expansion of the SRF program would establish, in each state that so chooses, a multimedia environmental financing authority capable of directing assistance to the most critical state environmental priorities. A federal trust fund, or state trust funds, would help close the financing gap in two ways. It could provide grants (or other kinds of assistance — including loans, credit enhancement, or even technical assistance) to economically disadvantaged communities for investment in water quality, drinking water, and solid waste management facilities. In addition, trusts would improve the liquidity of state environmental facility financing authorities including SRFs by:

- Having the statutory authority to issue environmental revenue bonds exempt from federal taxation, which would lower the cost of financing;
- Making loans to state environmental facility financing authorities;
- Purchasing debt instruments, including short-term notes, and pooling issues;
- Providing guarantees or issuing letters of credit backing debt instruments; and
- Acting as a secondary market by purchasing state loan portfolios.

Increase the Use of Bond Banks to Improve Access to the Bond Market for Small Communities

Current Policy

Small communities that need to borrow money for environmental projects often are unable to do so in the national bond market because of poor credit ratings, little financial expertise, and relatively small capital needs. Where access to the national bond market is available, interest rates are often very high.

The Board's Alternative

Bond banks could bring more debt financing opportunities within the reach of small communities and help reduce the dependence of such communities on subsidized assistance. The Board recommends that EPA:

- Provide technical assistance on the establishment and use of bond banks. This could include identifying their advantages and pitfalls, clarifying bond bank operational structures, and explaining how a bond bank could be used to meet small community environmental facility needs in their state. Such assistance could be delivered through publications, workshops, or conferences;
- Identify barriers to effective bond bank operations and develop strategies to overcome those barriers, such as working with existing bond banks to exchange information about how they have handled these barriers; and
- Explore the financial, legal, and administrative feasibility of creating regional or multi-state bond banks to facilitate issuance of tax-exempt bonds by small communities. This could offer greater savings as issues would be pooled over an even larger number of small issues.

The Result

Helping states that have not yet created bond banks establish new bond banks and helping states that already have bond banks improve the effectiveness of these financial institutions would build financing capacity in small communities. In particular, it would help small communities gain access to the municipal bond market at lower interest rates and with lower issuance costs.

USE FEE SYSTEMS TO RAISE REVENUES FOR ENVIRONMENTAL INVESTMENTS

Current Policy

Even with aggressive capitalization of the SRF program, states may still face funding shortfalls in their water quality programs. Moreover, there is currently no self-sustaining source of funds available for drinking water and solid waste management programs.

The Board's Alternative

Dedicated fee systems could help raise funds needed to finance investments in these media and could finance program costs, or cover debt service on capital costs. Fees (and taxes) can be designed to raise revenues and/or act as an incentive to reduce pollution generated. The Board concluded specific opportunities exist to impose fees or taxes on water use, effluent discharge, and solid waste disposal or generation. While several issues would have to be resolved in developing and implementing a fee or tax program, the Board determined that the issues are not insurmountable.

The Result

The Board estimates that states could realize significant revenues from modest fees on water supply, water treatment, and solid waste services. These revenues would be affected by several factors, including fee design, reduction in service use from fee imposition, and the ability to avoid/enforce fee payment. Potential revenues are listed below:

Annual Revenue Streams Available, 1993—2000 ($ billions)

	Low Projection	High Projection
Water supply fee (public supply only)	$5.8—$6.3	$23.1—$25.1
Wastewater charge	$4.9—$5.3	$19.6—$21.3
Solid Waste charge	$1.5	$7.4
Total	**$12.2—$13.1**	**$50.0—$53.8**

Dedicated tax and fee programs would directly assist state and local governments in financing environmental investments and could also result in a reduction in pollution generated.

REINTERPRET FEDERAL GRANT POLICY

Current Policy

Current interpretation of federal grant policy found in OMB Circular A-102 has effectively eliminated private financing of federally grant-funded wastewater treatment facilities. Under the policy, any recipient of a federal grant to fund a capital facility must hold title to the grant-funded property.

If the property is privatized, the federal government must be reimbursed for its share of the funding for the property, based on the fair market value of the property at that time. The compensation requirement limits the ability of a private owner to leverage the value of the facility because a portion of the capital raised upon refinancing must be used to repay the federal government. This displaces capital that could otherwise increase the value of the facility or its capacity to provide service. This can result in increased user fees without an offsetting increase in services provided or improved water quality.

The Board's Alternative

There are several actions that can be taken to promote private financing of wastewater treatment facilities that have been funded by federal grants. We can:

- Accept private reinvestment in the grant-funded facility as partial or full compensation for the federal share — displacement of capital would not take place;
- Redefine the period of federal interest — let it coincide with the design life of the facility;
- Redefine public ownership of such facilities — allow private equity participation thus permitting public-private partnerships to participate in federally funded SRF programs restricted by statute to publicly owned treatment works (POTWs); and
- Permit encumbrance of such facilities (that is, offering of the facility as collateral) — securing debt financing from a private source may require that the POTW owner offer the facility as collateral. Permitting encumbrance would therefore increase debt financing opportunities.

The Result

The elimination or modification of grant repayment requirements has significant potential to increase net capital investment in wastewater treatment facilities. Some $100 billion invested in POTWs would leverage significant amounts of private investment and result in a potential reduction in the cost of capital improvements. In addition, compliance would increase as financing opportunities expanded.

PROMOTE FULL-COST PRICING OF ENVIRONMENTAL SERVICES TO REFLECT THE TRUE COSTS OF PROVIDING THOSE SERVICES

Current Policy

Local governments finance their environmental facilities and services with general revenues, dedicated taxes, federal and state grants and loans, and user fees for the services provided. Historically, many communities have not relied on user fees to cover the full costs of providing services. Rather, they have subsidized service provision from one or more of the other possible sources of revenue. Aside from distorting the true costs of providing these services, subsidizing environmental services acts as a disincentive to private sector participation, as the private sector would not view public subsidies of a private venture as stable revenues and would base investment decisions on user fee revenues only.

The Board's Alternative

Full-cost pricing of environmental services would ensure that consumers' demand for services is proportionate to the cost of providing them. It could also encourage private investment as an alternative to public financing of local environmental facilities. To promote full-cost pricing, EPA could:

Endorse the practice in EPA publications as a matter of public policy and as a necessity for financial and operational efficiency, and provide technical assistance to localities in implementing full-cost pricing. Assistance could include helping localities set up effective cost-accounting procedures and estimating techniques to determine (1) capital and operating costs per unit of service delivered and (2) appropriate discounts. It could also include providing support for public outreach and information programs to explain the benefits of full-cost pricing; and

Encourage states to consider the adequacy of fees in programs seeking new or renewal of permits. EPA could provide guidance to states on how to best incorporate a review of the adequacy of user fees in their permitting process.

The Result

Full-cost pricing would promote efficient resource allocation and would act as a direct incentive to the private sector to increase its involvement in the provision of environmental services. It would also free public funds currently being used to subsidize environmental services.

Provide Information and Technical Assistance to Reduce the Risks Associated With Private Investment in Public Environmental Facilities

Current Policy

Lack of adequate information on the real financial risks associated with environmental investments as well as insufficient or reasonably priced insurance for these investments has resulted in the perception that investments in environmental facilities are highly risky. This perception discourages private lending for many types of environmental projects. Where investments are made on the basis of inflated perceived risks rather than much lower actual risks, communities will pay too much to finance their environmental projects.

The Board's Alternative

EPA could reduce the perceived risks of investment by providing detailed information on the probability of activities occurring for which investors would be liable, along with suggested measures to minimize the risks of these events. It could also provide technical assistance to independent agencies so that they could assign "risk ratings", not unlike Moody's or Standard and Poors, to environmental investments.

EPA could reduce the real risks associated with environmental investments by promoting and facilitating private sector insurance efforts that offered insurance to either the capital investor or the insured facility.

The Result

Adequate information on the risks associated with particular environmental investments accompanied by independent risk ratings of these investments would help correct perceptions of the actual risks of such investments. It would encourage more private sector participation in low-risk environmental projects. It would also encourage the setting of user fees that more accurately reflect the actual risks posed by a given project.

An increase in privately available liability insurance for environmental projects would help lower the real risks of such investments. It would promote private sector participation and would encourage banks and other lending institutions to offer private loans for environmental facilities.

EXPAND EPA'S DEMONSTRATION PROJECTS FOR PUBLIC-PRIVATE PARTNERSHIPS

Current Policy

State and local governments are increasingly constrained in their ability to pay for environmental investments. Traditional sources of revenue are becoming insufficient to allow states and localities to comply with environmental mandates in a timely manner.

The Board's Alternative

Greater private sector involvement in the provision of environmental services would assist state and local governments in meeting the financing challenge they face. In particular, public-private partnerships have proven a successful model in the provision of public services. The Board recommends that EPA:

- Expand its demonstration program for public-private partnerships involving the development and implementation of partnerships for financing environmental facilities or services. It should also include a project evaluation component to assist the future development and implementation of independent public-private partnerships;
- Investigate the establishment of an independent authority to make low-interest loans or grants to finance key stages of the formation of public-private partnerships; and
- Provide assistance to local governments that are interested in establishing public-private partnerships. This assistance could include seminars, publications, and direct consultation on specific projects.

The Result

Private sector involvement can reduce the costs of providing environmental services. It would also free public funds for use in other areas. (Indeed, when public financial resources are inadequate or nonexistent, or when municipal debt has already reached its limit under current law, private investment may effectively be the only source of funds for expanding the capacity of environmental services.) Public-private partnerships would also find creative ways to leverage available resources to achieve environmental quality goals. Action by EPA to promote these partnerships would facilitate their use and success.

ENCOURAGE STATES AND LOCALITIES TO MODIFY LAWS THAT ARE DISINCENTIVES TO PRIVATE SECTOR PARTICIPATION

Current Policy

Some state and local government practices, such as those aimed at ensuring accountability and public control over decision-making, indirectly discourage private involvement in the provision of environmental services.

The Board's Alternative

To encourage private sector involvement, the Board recommends that EPA:

- Provide guidance to states that are considering revision of their procurement laws to enable local governments to adopt the American Bar Association (ABA) Model Procurement Code and Ordinance. EPA could also provide guidance to local governments on facilitating private sector participation through the use of the ABA Code. The Code provides voluntary standards that states and local governments can use to revise their procurement statutes to allow greater sophistication and flexibility, including the option of using a competitive negotiation process whereby contract awards are not limited to the lowest cost bidder; and
- Establish guidance on effective privatization legislation. This would authorize long-term contracts between local governments and the private sector where feasible, practical, and desirable.

The Result

Increased flexibility in procurement laws would allow local governments to hire the private sector firms that, while not the lowest bidder, would provide the best overall package in terms of service provision and cost-effectiveness. Use of long-term contracts would attract private sector investment since it would allow private firms to lower the fees they charge by spreading amortization costs over a longer period and would reduce the premium on risk included in user fees. Both actions would foster increased private sector involvement in the provision of environmental services.

Appendix B: Environmental Financial Advisory Board Committees

Paying For Environmental Mandates

Chair: Mr. Joseph D. Blair
Ms. Frieda K. Wallison
Honorable Beryl F. Anthony, Jr.
Honorable Pete V. Domenici
Mr. J. James Barr
Mr. Philip Beachem
Mr. Pete Butkus
Mr. Richard Fenwick, Jr.
Ms. Deeohn Ferris
Mr. Shockley D. "Hap" Gardner, Jr.
Honorable Stephen Goldsmith
Mr. John Gunyou
Mr. William B. James
Dr. Peggy Musgrave
Mr. Gerald Newfarmer
Mr. John V. Scaduto

International

Chair: Mr. Michael Curley
Mr. William H. Chew
Mr. Roger D. Feldman
Dr. William Fox
Mr. Harvey Goldman
Mr. Robert F. Mabon, Jr.
Ms. Heather L. Ruth
Mr. Richard Torkelson
Ms. Jane G. Witheridge

Education & Communication

Chair: Honorable Anne Meagher Northup
Mr. David M. Lick
Mr. John C. "Mac" McCarthy
Mr. Marlin L. Mosby, Jr.
Mr. George A. Raftelis
Ms. Roberta H. Savage
Mr. Warren W. Tyler
Ms. Elizabeth Ytell

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Ms. Abby J. Pirnie
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Ms. Christina S. Parker
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Office of Program Management Operations
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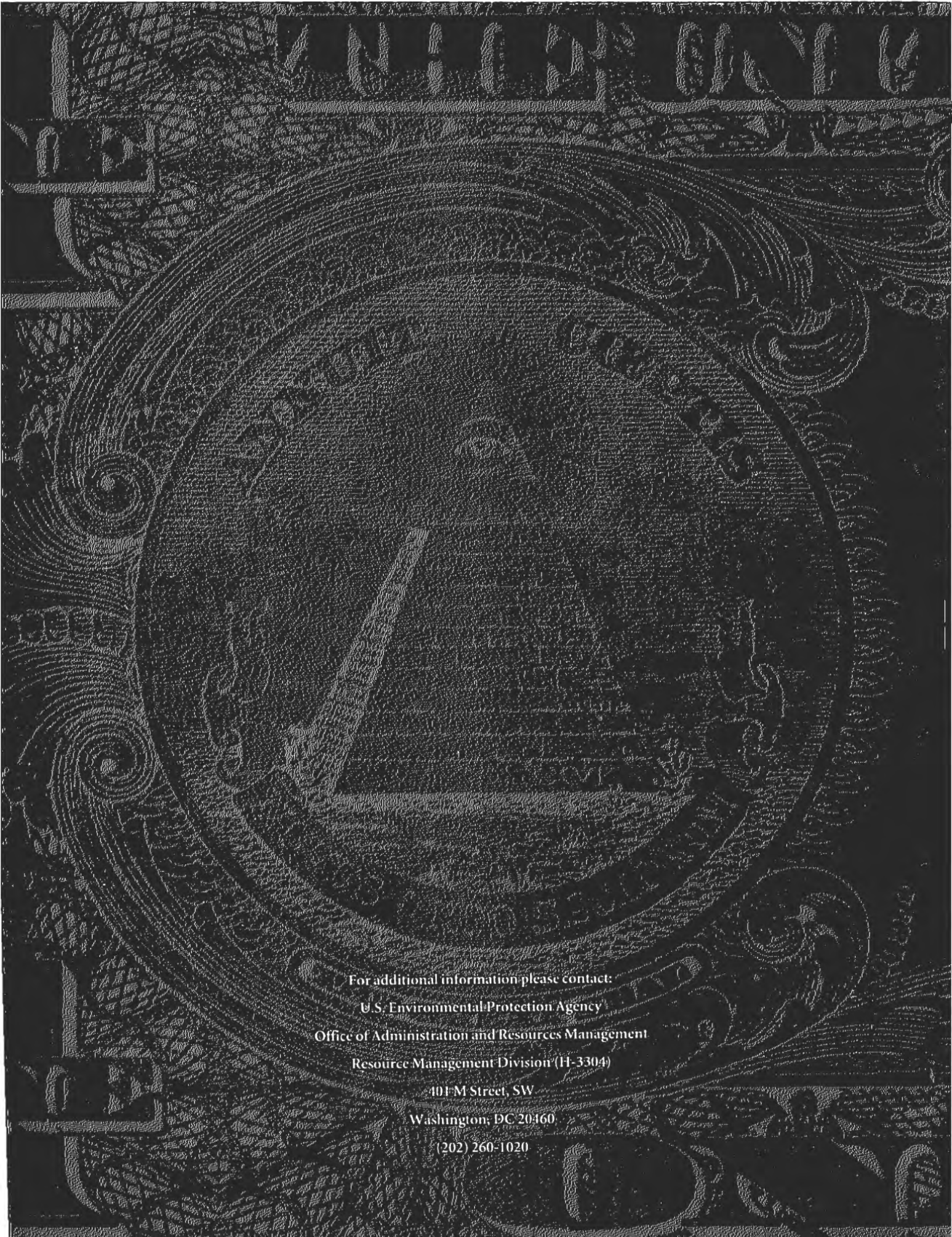

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