



Paying for Water Quality: Managing Funding Programs to Achieve the Greatest Environmental Benefit

Report to Congress

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Executive Summary

Recent studies by EPA and others suggest that the nation's wastewater infrastructure will require large investments in coming decades. At the same time, additional funding will be required to address failing decentralized wastewater systems, wet weather pollution discharges, and nonpoint sources of pollution that threaten our nation's water resources. Because the federal government funds only a portion of the nation's investment in water quality, states have urged maximum flexibility in their use of federal resources, so as to direct investments at the point source and nonpoint source problems of greatest priority. However, states also recognize that they must be held accountable to the goals of the Clean Water Act (CWA), the Safe Drinking Water Act, and other wastewater-related federal statutes.

At the request of Congress, EPA hosted a two-day workshop on March 14–15, 2002 to discuss how states and the federal government have struck this balance with existing federal funding programs. The discussion at the workshop highlighted many examples of how these goals are well balanced—examples of states using funding sources to fund a wide variety of projects, examples of states collaborating with partners to develop important projects, and examples of states establishing priorities to ensure that the highest priority projects are funded.

In particular, Congress asked five questions about federal water quality funding programs. These questions are listed below, and they are followed by answers that EPA offers after participating in this workshop and hearing stakeholder comments on these issues.

Question 1: Are the State Revolving Fund (CWSRF) and other federal financial assistance programs achieving maximum water quality protection in terms of public health and environmental outcomes?

EPA Response: The CWSRF program and other federal financial assistance programs are achieving a very high level of water quality protection and continue to adjust funding priorities and options in an effort to maximize the impact of funding. While federal guidelines do not require states to fund in priority order, states do generally fund the projects with the highest priority scores. Projects may be bypassed, however, whenever they are not ready to proceed at the time the funding is available.

During the early years of the CWSRF program most states placed an emphasis on funding projects that were similar to the types of projects funded under the Construction Grants program. In fact, many initial CWSRF priority systems and project lists were based on their Construction Grant program priority systems and project lists. However, as states successfully made the transition to providing loans for publicly-owned treatment works, CWSRF programs also began to focus more on devising loan structures to address nonpoint source water quality projects. As a result, today the CWSRF program has an impressive track record of funding a broad array of projects. States will continue to modify their CWSRF funding objectives over time and find new ways of successfully applying CWSRF funding for new high priority water quality projects due to several important factors including:

- Growing understanding of water quality impairments by watershed and a clearer identification of projects and actions necessary to address the impairments
- Increasing local acceptance of low-interest loans for nonpoint source and other watershed protection projects

- Development of successful institutional arrangements and loan structures at the state and local level
- Continuing interest from Congress, EPA, and the public in seeing the CWSRF program fund projects that have the greatest impact on water quality

Question 2: Are alternatives other than wastewater treatment plants and collection systems eligible for federal assistance, and, if not, why not?

EPA Response: Federal funding programs are available to fund a wide variety of water quality projects including all types of nonpoint source, estuary and watershed protection or restoration projects, onsite and decentralized treatment system projects, and traditional municipal wastewater treatment system projects. The largest federal funding source for water quality projects is the CWSRF program. Title VI of the CWA establishes the following as eligible for CWSRF assistance:

- Planning, design, and construction of Publicly-Owned Treatment Works (CWA section 212)
 - Collection projects including Combined Sewer Overflows/Sanitary Sewer Overflows
 - Treatment including advanced treatment
- Implementation of nonpoint source projects (CWA section 319)
 - Private or public borrowing for projects allowed
- Development and implementation of management plans in 28 National Estuary Programs (section 320)
 - Private or public borrowing for projects allowed

Most CWSRF funding has been provided for important municipal wastewater treatment projects, however many other projects have been funded through CWSRF loans, including:

- Onsite system remediation
- Stormwater best management practices
- Construction best management practices
- Agriculture best management practices
- Riparian corridor protection/restoration
- Wetland protection/restoration
- Habitat protection/restoration
- Underground storage tank removal
- Brownfields remediation
- Source water protection

In 2000, 33 percent of all CWSRF loan agreements were made to fund nonpoint source or estuary protection projects. Further details on the operation and activities of the SRF and other federal funding for water quality projects are provided in other sections of this report.

Question 3: Do the priority ranking systems which states use to prioritize eligible treatment works projects properly account for environmental outcomes, including indirect impacts from air deposition of treatment plant effluent or stormwater runoff from sewer construction-induced growth?

EPA Response: The priority ranking systems that are in use by states to prioritize eligible treatment works use a variety of factors to evaluate projects and account for expected environmental outcomes. Typically, funding program priority systems include a mix of evaluation criteria such as:

- Public Health—What public health concerns will the project address? For example, will it address a ground water or surface water supply contamination?
- Water Quality—Is the project addressing a discharge from a municipal facility that is out of compliance with permit limits? Which of the receiving water’s designated uses are addressed by the proposed project: drinking water, swimming, fish consumption and shell fishing? Is the discharge affecting high quality water bodies?
- Financial Distress—Is the project to be undertaken by a financially distressed community?
- Project Effectiveness—How and to what extent will the project eliminate or mitigate the problem? Will the project result in reduced violations, restoration of designated uses, or reduction or elimination of public health threats?

Once projects are selected to proceed based on the established priority systems and funding availability they are required to conduct a detailed environmental review to determine whether the project could have unintended impacts on the environment. A CWSRF program environmental review follows the requirements established by the National Environmental Policy Act of 1969 (NEPA). Environmental review compliance is achieved either through application of the federal NEPA standards or through application of a federally approved state environmental review process. The environmental review process includes consideration of how projects could affect the environment and includes a review of the project’s potential impact on air, threatened or endangered species, open space, historical and archeological resources, and other impacts addressed in federal, and often state, environmental laws. Evaluation of environmental impacts from air deposition-related pollution caused by the projects can be addressed during the environmental review process.

Question 4: Are recipients of federal assistance required to adopt appropriate financial planning methods, which would reduce the cost of capital and guarantee that infrastructure would be maintained ?

EPA Response: Federal requirements and governmental accounting standards provide a framework that encourages appropriate financial planning by recipients of federal assistance. To be awarded a CWSRF capitalization grant a state must comply with certain federal requirements. One of these requirements addresses assistance recipient accounting and auditing practices. Under this requirement the state must agree to require recipients of SRF assistance to maintain project accounts in accordance with generally accepted government accounting standards as established by the Governmental Accounting Standards Board (GASB). Recently GASB issued a new set of requirements for governmental financial reporting. The new GASB Statement 34 on Basic Financial Statements represents the most significant change in financial reporting practices in

the history of governmental financial reporting. Under GASB Statement 34, local governments now must adequately account for and report on capital asset valuation to comply with generally accepted government accounting standards. The information provided in the new reports required under GASB Statement 34 will provide insight into a government's care and maintenance of CWSRF funded facilities. Most state CWSRF programs require loan recipients to submit financial statements to document financial capacity and to demonstrate that financial and accounting controls are in place.

GASB Statement 34 provides for two methods for reporting on infrastructure assets. First, under the historical cost depreciation method (e.g. straight line depreciation), communities would report assets as being depreciated over their estimated useful lives. Depreciation expense would then be reported in the entity's annual financial statements. Second, GASB Statement 34 specifies a new reporting approach, the "modified approach," for those governments that wish preserve their infrastructure assets into the future using asset management techniques. While it is difficult to confidently predict the future, there are reasons to believe that over time more governments may employ asset management techniques for wastewater systems. Asset management appears to be gaining acceptance in local governments as a management technique that is both proven in other parts of the world and necessary to address future infrastructure funding challenges.

Under the modified approach, wastewater systems will not be required to depreciate their infrastructure assets if they use an asset management system and the government documents that the eligible infrastructure assets are being preserved approximately at or above a condition level established by the government. Financial reports will specify annual maintenance expenses, preservation expenses (outlays to extend the useful life of an asset) and asset additions and improvements. The implication of the approach is that communities will conduct financial planning to identify and make needed investments to ensure the long-term preservation of infrastructure assets.

Other federal requirements also imply financial planning will be carried out by local recipients. The CWSRF program requires that a dedicated source of repayment for a loan be identified and pledged for repayment prior to receiving a loan. In most cases the dedicated sources of repayment have been revenue generated from user charge systems that are designed to cover the costs of operation and maintenance and capital investment in the facility. Many state programs require communities to develop adequate user charge systems. These user charge requirements stem in part from one of the original federal requirements that stated that communities constructing section 212 publicly-owned treatment works projects before fiscal year 1995 must develop user charge systems and have the legal, institutional, managerial, and financial capability to construct, operate, and maintain the facility (section 204(b)(1)).

The combination of the requirements helps assure that assistance recipients will adopt and follow financial management practices that are conducive to maximizing the life-span of SRF funded infrastructure.

Question 5: Have sufficient performance measures and information systems been developed to assure the Congress that future federal assistance will be spent wisely by the states?

EPA Response: Existing performance measures and information systems currently provide information that documents progress in water quality programs. EPA recognizes that efforts to accurately track overall performance are critical to ensure water quality assistance programs are effectively meeting their intended environmental goals. Many groups including EPA, states, Congress, and interest groups are interested in the cost-effectiveness of federal funding for wastewater treatment improvements, and the level of associated benefits for national water quality.

Accurately conducting environmental performance tracking is a challenge at the national level. It is difficult to discern the overall collective effects of many discharges to a particular area or watershed. However, there are efforts undertaken annually to measure current water quality and annual progress made toward the strategic goal of clean and safe water. One important source of these performance measures is the EPA Annual Report. Each year EPA reports on long-term strategic goals that identify the environmental results the Agency is working to achieve. As required under the Government Performance and Results Act (GPRA), the Agency develops an annual plan that translates these long-term goals and objectives into specific actions to be taken and resources to be used during the fiscal year. In EPA's FY2001 Annual Report (see <http://www.epa.gov/ocfo/finstatement/2001ar/2001ar.htm>), the Agency reported on the following specific annual performance goals:

- Maintain percent of the population served by water systems that will receive drinking water meeting all health-based standards that were in effect as of 1994.
- Reduce exposure to contaminated recreation waters by increasing the information available to the public and decision-makers.
- Water quality will improve on a watershed basis such that 550 of the nation's 2,262 watersheds will have greater than 80 percent of assessed waters meeting all water quality standards, up from 500 watersheds in 1998.
- Assure that states and tribes have effective, up-to-date water quality standards programs adopted in accordance with the Water Quality Standards (WQSs) regulation and the WQS program priorities.
- Restore and protect estuaries through the implementation of Comprehensive Conservation and Management Plans (CCMPs).
- Industrial discharges of pollutants to the nation's waters will be significantly reduced through implementation of effluent guidelines.
- Current national pollutant discharge elimination system (NPDES) permits reduce or eliminate discharges into the nation's waters of (1) inadequately treated discharges from municipal and industrial facilities; and (2) pollutants from urban storm water, combined sewer overflow, and concentrated animal feeding operations.
- 700 projects funded by the Clean Water State Revolving Fund (SRF) will initiate operations, including 400 projects providing secondary treatment, advanced treatment, CSO correction (treatment), and/or storm water treatment. Cumulatively, 7200 SRF funded projects will have initiated operations since program inception.

Each of these annual goals is accompanied by performance measures that provide more specific measures of activities during the year.

The Agency is also working to improve the performance information available to Congress and others. For example, in a recent EPA report titled *Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment*, EPA explores how biochemical oxygen demand (BOD) in POTW effluent and dissolved oxygen (DO) levels downstream from point sources have changed over time. Nine case studies were documented and analyzed through this 450-page technical report. Models were then created based on these highlighted case studies to allow EPA to quantify potential water quality improvements by POTW treatment innovations.

By using these models, EPA revealed that although population size increased by 35 percent between 1968 and 1996, and influent loadings were also increasing during this same period, wastewater treatment improvements contributed to a 45 percent decrease in BOD₅¹ and a 23 percent decrease in BOD_U² in effluent discharges. Collective removal efficiency rates nationwide for BOD₅ and BOD_U increased from 63 percent and 39 percent respectively in 1968 to 85 percent and 65 percent respectively in 1996.

This study helps to illustrate that modeling can be used to demonstrate the benefits of clean water investments, successful projects, and for determining compliance outcomes on a national basis. EPA is currently working to enhance available water quality modeling capabilities. A newly modified Clean Water Needs Survey (CWNS) and other data sources will provide information for tracking wastewater needs and spending. Also, in an effort to gain a comprehensive understanding of overall environmental performance, EPA developed BASINS (Better Assessment Science Integrating Point and Nonpoint Sources), a Geographic Information System (GIS)-based water quality modeling program to track environmental performance using data from many sources including the CWNS database.

In the past, efforts to measure environmental success, including watershed-based needs accounting, were limited by an inability to track data by geographic location. Newer GIS models, such as BASINS, can be used to coordinate such information as nonpoint source, stormwater, and wastewater data through time and by location. Through GIS analysis, it will be possible to analyze water quality in combination with relevant socioeconomic indicators in an area including population demographics, land use patterns, transportation networks, and other infrastructure indicators. As these models are refined over time, performance tracking activities will become easier for all interested parties including Congress, the public, and state, local, and federal authorities.

1 BOD₅ represents the biochemical oxygen demand from the decomposition of carbon over an incubation period of five days, at 20 degrees Celsius.

2 BOD_U represents the biochemical oxygen demand from the decomposition of ammonia, organic matter, and carbon upon ultimate completion of the decomposition process.

1. Introduction

Background

The Joint Conference Committee report on H.R. 2620, the 2002 appropriations bill that includes the U.S. Environmental Protection Agency's (EPA's) budget, directed the Agency to develop a broad working group to review and address the basic means by which EPA may accord flexibility to states and also assure that federal investments in water pollution control achieve the greatest possible benefits (Full text from conference report included in Appendix A).

The Committee requested that the following specific questions be among those discussed:

1. Are the SRF (State Revolving Fund) and other federal financial assistance programs achieving maximum water quality protection in terms of public health and environmental outcomes?
2. Are alternatives other than wastewater treatment plants and collection systems eligible for federal assistance, and, if not, why not?
3. Do the priority ranking systems which states use to prioritize eligible treatment works projects properly account for environmental outcomes, including indirect impacts from air deposition of treatment plant effluent or stormwater runoff from sewer construction-induced growth?
4. Are recipients of federal assistance required to adopt appropriate financial planning methods, which would reduce the cost of capital and guarantee that infrastructure would be maintained?
5. Have sufficient performance measures and information systems been developed to assure the Congress that future federal assistance will be spent wisely by the states?

The Committee requested that the working group be formed with representatives from a variety of interested parties including the State/EPA SRF Work Group, the Environmental Council of the States, Environmental Finance Centers, and centralized and decentralized wastewater and nonpoint source stakeholder groups.

The Committee indicated in the Conference Report and through subsequent conversations that the workgroup, through EPA, should prepare and submit to the Congress by July 15, 2002, a report addressing the aforementioned questions and other related issues it deems relevant.

Approach

In response to the Committee's direction, EPA organized and conducted a public workshop on March 14–15, 2002 in Washington, D.C. The public workshop was designed to provide a forum to address the questions raised by the Committee and to provide an opportunity for public input on issues related to but not specifically addressed in the Committee report language.

The public workshop was advertised to potentially interested parties including those requested by the Committee on Appropriations. Information about the public workshop was widely distributed through a federal register notice, email messages to EPA's SRF and nonpoint source-related mailing lists, and through several "listservs," (email systems that distribute requested topical information). Organizations such as the Environmental Council of the States were given an electronic version of the

workshop brochure which they then distributed to their members.

Nearly 120 individuals registered (the registration list is included in Appendix B) for the event representing the following array of organizations:

- State agencies (14 SRF program agencies, 5 environmental or other agencies)
- Private sector (19 companies—e.g., decentralized wastewater system vendors)
- Nongovernmental/Nonprofit Organizations (15)
- Associations (9)
- Federal agencies (3)
- Municipalities (2)
- Congressional committees (1)

The agenda for the public workshop was designed to address the questions posed by Congress through a combination of expert speaker panels, question and answer sessions, and open discussion sessions. (The public workshop agenda is included in Appendix B) The panel presentations were included to provide a base understanding of SRF and other federal funding program requirements, past performance, and perspectives on future directions. State representatives provided case studies that illustrated program operations and innovations. The question and answer sessions and open discussion sessions followed the presentations to ensure that ample opportunity was provided for input from members of the audience.

The group of interested people that participated in the public workshop did not fall under the definition of a Federal Advisory Committee under the Federal Advisory Committee Act. As a result, the intent of the public workshop was to hear differing perspectives and insights without an attempt to form a group consensus or to generate group recommendations. EPA also provided the opportunity for any interested group or individual to submit comments or other input through April 15, 2002.

Report Organization

The report organization follows the public workshop agenda. There are eight major sections following this introduction including:

- Water quality funding—a historical perspective
- Overview of the State Revolving Fund program
- The role of other water quality funding programs
- Funding decentralized wastewater systems
- Funding watershed protection and nonpoint source pollution control
- Exploring how states consider environmental outcomes
- How to tackle environmental performance tracking
- Encouraging efficient wastewater management

The report is not an exhaustive record of all details discussed during the public workshop nor does it attempt to embellish or interpret matters that were incomplete or left unclear during the event. Instead, the report summarizes the main themes and messages of each session's presentation(s) and the public input provided during the session. A workshop summary (included in Appendix C) was prepared to provide a more detailed description of the public comments and responses from panel members or other audience members.

2. Water Quality Funding—A Historical Perspective

Water Quality Funding: Yesterday and Today

Throughout the twentieth century local governments provided the majority of financial support for water pollution control (see Figure 2–1). However, during the same period, federal funding programs provided critical support that encouraged local spending for wastewater treatment—federal funding incentives were especially important to the implementation of new levels of wastewater treatment. This section presents a very brief historical perspective of water quality funding that provides insight into the funding challenges our country faces today.

The earliest water quality projects focused on wastewater collection systems. By 1910, about 10 percent of the U.S. urban population was served by collection systems that conveyed wastewater to primary treatment facilities or to direct discharges. Around the same time there were several early experiences with “secondary treatment.” For example, in 1907 one of the first trickling filter facilities was constructed in the city of Gloversville, New York. The first activated sludge facility in the nation was constructed in Chicago in 1916. Although many cities began to finance, build, and connect their centralized collection systems to secondary wastewater treatment facilities, many others

continued on only with primary treatment. The existence of serious water pollution problems in the United States was first recognized during the 1920s and 1930s. Outbreaks of cholera, typhoid, and other water-borne diseases as well as declining fish and shellfish populations led to the recognition that direct discharge or primary treatment were generally inadequate methods of wastewater disposal.

Federal Funding Initiated

Federal funding to subsidize the cost of water pollution control was initiated with the passage of the 1948 Water Pollution Control Act. This Act provided the first authorization of funds for wastewater treatment in the form of loans. Early efforts to address water pollution control and related funding also included:

- 1956 Water Pollution Control Act (Health, Education, and Welfare)
- 1965 Water Quality Act (Interior)—Set water quality standards
- 1965 Public Works and Development Act (Commerce)—Created the Economic Development Administration to provide grant money to economically distressed areas for public works projects

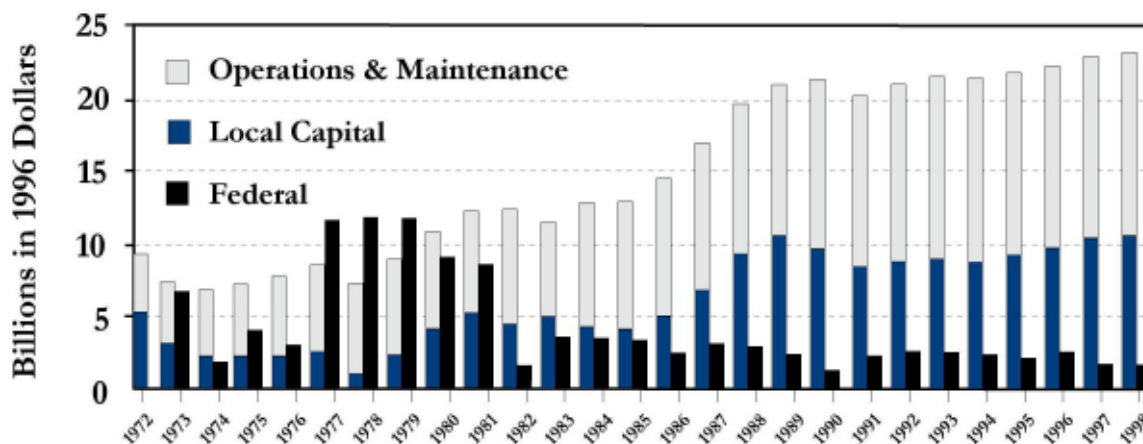


Figure 2–1: Federal vs. Local Wastewater Expenditures

The Push for Secondary Treatment

With growing recognition that water quality in many of the nation's rivers and lakes were severely impaired, Congress determined that bolder measures were required to reverse the trend and passed the 1972 Federal Water Pollution Control Act Amendments. The Amendments mandated at least secondary treatment and provided increased federal construction grant assistance. The results of the 1972 Act were impressive. In 1972, 2,594 (13 percent) of the nation's 19,355 publicly-owned treatment works (POTWs) were offering less than secondary treatment, 49 percent were providing secondary treatment, and about two percent of the facilities were providing treatment levels greater than secondary treatment. By 1996, the number of POTWs offering less than secondary treatment dwindled to less than one percent (less than 200), 28 percent were providing greater than secondary treatment, and another 12 percent of facilities had no discharge.

Other Federal Programs Initiate Water Quality Funding

During the early 1970s other federal programs were also initiated to provide support for water pollution control infrastructure. The 1972 Rural Development Act established the Rural Development Insurance Fund under the Department of Agriculture to provide loans for wastewater and drinking water infrastructure. Also, in 1974, the Department of Housing and Urban Development initiated the Community Development Block Grant (CDBG) program. Each year 10–20 percent of block grants are used to support water and wastewater infrastructure.

Programs Continue to Evolve

During the late 1970s and early 1980s the country adjusted the water pollution control infrastructure funding programs first with the 1977 Clean Water Act amendments that transferred program responsibility

to the states and then through the 1981 Construction Grants Amendments which reduced funding levels and increased the local share of project costs. Also, during this period Congress began to increase USDA conservation funding with the passage of the 1985 Food Security Act. This Act established four major new conservation programs including the Conservation Reserve Program (CRP) and began a steady increase in funding that would triple funding levels in the next fifteen years. In 1990, the Food, Agriculture, Conservation and Trade Act made some modifications to the Conservation Reserve Program to emphasize water quality considerations. The Act also established the Wetlands Reserve Program. In 1996, the Federal Agricultural Improvement and Reform Act consolidated conservation cost-share programs with the establishment of the Environmental Quality Incentives Program (EQIP).

A New Focus on Water Quality

In the late 1980s Congress signaled a new emphasis on addressing water quality improvements. The 1987 Clean Water Act Amendments made major changes to water program management with the introduction of Section 319 (Nonpoint Source Control) and Section 320 (Estuary Protection). Title VI of the Amendments replaced the construction grants program with the Clean Water State Revolving Fund (CWSRF) program and fundamentally changed the way the nation subsidizes wastewater system construction and other water quality projects. Instead of direct grants to municipalities for construction of publicly owned treatment works, through Title VI Congress directed EPA to provide grants to states to capitalize low-interest loan programs and other nongrant funding options such as purchasing local bond insurance. Congress also made the CWSRF a state-run program with only minimal oversight by EPA.

This new focus has resulted in new projects being funded. While most CWSRF funding has been provided for important municipal wastewater treatment projects, many other projects have been

funded through CWSRF loans, nonpoint source grants, and through the National Estuary Program including:

- Onsite system remediation
- Stormwater best management practices
- Construction best management practices
- Agriculture best management practices
- Riparian protection
- Wetland protection
- Underground Storage Tank removal
- Brownfields remediation
- Source water protection

Further details on the operation and activities of the SRF and other federal funding for water quality projects are provided in other sections of this report.

Future Water Quality Funding Challenges

To gain a better understanding of the future challenges facing the clean water industry, EPA is conducting a study to identify whether there is a measurable gap between projected clean water investment needs in municipal systems over the twenty-year period from 2000 to 2019 and current levels of spending. The draft analysis indicates that a significant annual funding gap exists and is projected to grow to an annual gap of nearly \$30 billion by 2019 if the nation’s wastewater systems maintain current spending and operations practices (see Figure 2–2).

The analysis found that there are a number of reasons why the funding gap is developing:

- Populations are increasing and shifting geographically. Population in the US grew by 13 percent between 1990 and 2000 and is expected to grow to more than 325 million—a 16 percent change—by 2020. Systems will need to increase capacity to meet the demands posed by this growth. To complicate the issue, population is shifting geographically, requiring

rapid increases in system capacity in some parts of the country and requiring maintenance of aging systems in other parts.

- Operating and maintenance costs are higher for aging systems. Treatment plants typically have an expected useful life of 20—50 years before they require expansion or rehabilitation. Pipes have life cycles that can range from 15 to well over 100 years—with actual pipe life varying considerably depending on soil conditions, pipe material, climate, and capacity requirements. In some eastern cities, systems use pipes that are almost 200 years old. The older the pipes and plants become, the more it will cost to operate and maintain them.

- Current treatment may not be sufficient. In 1998, states, tribes, and interstate commissions assessed water quality in 32 percent of the nation’s estuaries and found 44 percent of the assessed areas to be impaired. The level of treatment may need to increase to gain further water quality improvements.

Nonpoint source needs will add to the funding challenge. In the past, nonpoint source needs have been difficult to quantify. There are many different types of nonpoint source pollution and there are a

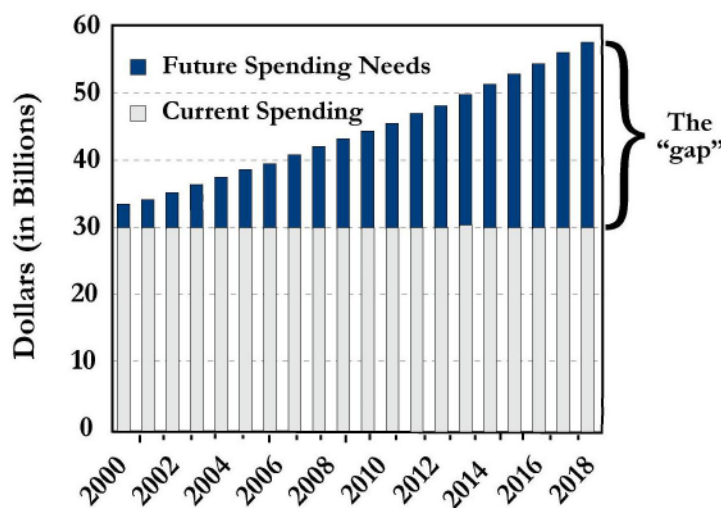


Figure 2–2: The Wastewater Funding “Gap”

variety of projects that could be undertaken to address the problems. However, it is known that the financing needs for stormwater control, total maximum daily load-related projects, wastewater management at animal feeding operations, and other project areas will be significant. The 2000 Clean Water Needs Survey (results not yet finalized) is a first attempt at providing project-specific needs data and increasing the overall understanding of the nonpoint source pollution funding challenges.

Principles for Closing the Infrastructure Gap

The nation's wastewater treatment systems provide critical public health and environmental benefits. However, this critical infrastructure is aging and deteriorating, and there is concern that spending will not keep pace with future needs. EPA has proposed principles to help guide efforts of federal, state, and local governments to address this threat to America's public health and environment. The principles for closing the infrastructure gap are:

- *Utilizing the private sector and existing programs*—Fostering greater private sector involvement and encouraging integrated use of all local, state, and federal sources for infrastructure financing.
- *Promoting sustainable systems*—Ensuring the technical, financial, and managerial capacity of water and wastewater systems, and creating incentives for service providers to avoid future gaps by adopting best management practices that will improve efficiency and reduce costs.
- *Encouraging cost-based and affordable rates*—Encouraging rate structures that cover costs and more fully reflect the cost of service, while fostering affordable water and wastewater service for low-income families.
- *Promoting technology innovation*—Creating incentives to support research, development, and the use of innovative technologies for improved services at lower life-cycle costs.

- *Promoting smart water use*—Encouraging states and service providers to adopt comprehensive strategies to manage water on a sustainable basis, including a greater emphasis on options for reuse and conservation, efficient nonstructural approaches, and coordination with state, regional, and local planning.
- *Promoting watershed-based decision-making*—Encouraging states and local communities to look at water quality problems and drinking water source water protection on a watershed scale and to direct funding to the highest priority projects needed to protect public health and the environment.
- *Promoting reliable onsite systems*—Encouraging state and local governments to improve the reliability of onsite sewage treatment systems to develop strategies for regional sewage management.

3. Overview of the Clean Water State Revolving Fund Program

Structure of the CWSRF Program

With more than \$34 billion in cumulative water quality funding, the Clean Water State Revolving Fund (CWSRF) stands today as one of the nation’s most successful environmental infrastructure financing programs. Established by Title VI of the Clean Water Act amendments of 1987 (CWA), the CWSRF program signaled a new national approach to providing funding assistance to water pollution abatement projects. The CWSRF program replaced the federal Construction Grants program and in doing so shifted the form of federal water quality funding assistance from grants to low-interest loans.

The 51 CWSRF programs (50 states + Puerto Rico) are structured like infrastructure banks that are capitalized with federal and state contributions. Through June 2002, the federal government has provided \$18.3 billion of capitalization grants to states as seed money for the CWSRF program. States, in turn, have provided \$3.8 billion in matching funds (equal to 20 percent of the federal grant). In addition, using fund assets as collateral, states have issued bonds to “leverage” their SRF programs and

have added an additional \$10.1 billion to funds available for critical projects (see Figure 3–1 that graphically displays the operation of the CWSRF program).

Under Title VI of the CWA, states have the flexibility to use the capitalization and other available CWSRF funds for a variety of assistance options including:

- Low-interest loans (at or below market interest rate)
- Refinance or buy local debt
- Guarantee CWSRF debt obligations
- Guarantee or purchase of insurance for local debt obligations
- Guarantee loans of “sub-state revolving funds”
- Pay state CWSRF administrative expenses
- Interest earning assets (for funds in a state’s CWSRF accounts)

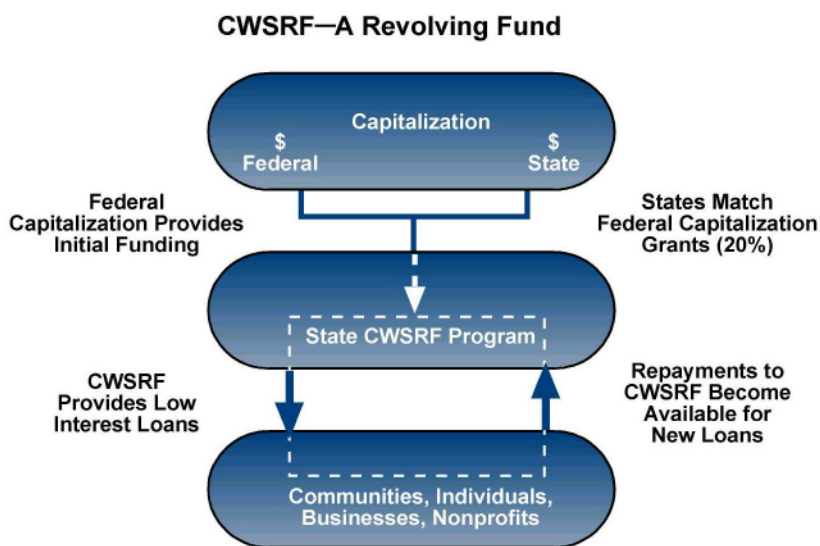


Figure 3–1: The Clean Water State Revolving Fund

Low-Interest Loans: Providing a Subsidy and a Continuing Source of Funding

Although there are multiple assistance options allowed under Title VI, to date, all 51 CWSRF programs have focused on providing attractive low-interest loans for eligible projects. Each year states develop an Intended Use Plan (IUP) that documents how states will use their available funding including federal grant(s), state matching funds, loan repayments, and fund earnings. The IUP identifies the eligible projects that will receive loans for the year. Funded projects receive low-interest loans that are then repaid over a period of up to 20 years.

States work with communities, farmers, home owners, and others to efficiently use available CWSRF funding. Today, 99 percent of available CWSRF funding is committed during the first or second year of availability. Annual assistance provided by the CWSRF program has increased over time (see Figure 3–2). Over the past five years the CWSRF program has funded an average of \$3.4 billion per year.

Since program inception, interest rates for CWSRF loans have averaged approximately three percent below the market rate for government borrowing. In 2001, CWSRF loan interest rates averaged 2.4 percent. The low interest rate provides a significant subsidy that can be compared to a grant. For

example, when the market rate for loans is 5.0 percent, a 2.0 percent CWSRF loan to a \$1 million project is equivalent to a \$240,000 grant and a \$760,000 loan at the market rate.

One of the most attractive features of the CWSRF program is its revolving nature. When CWSRF loans are repaid, the principal and interest are then available for new loans. Loan repayments and interest earnings provided CWSRF programs with more than \$1.8 billion last year and have averaged more than \$1.4 billion per year since 1997. Over time, the annual “revolving” level of funding will continue to grow at an impressive rate.

Serving Many Communities—Addressing Many Projects

The CWSRF program is assisting a large number of projects. Since inception, CWSRF programs have entered into approximately 10,900 loan agreements. Over the past five years, CWSRF programs combined have entered into an average of 1,237 agreements per year.

The CWSRF program provides assistance to a broad range of communities. In 2001, 65 percent of all loans (26 percent of funding) have been made to communities with populations less than 10,000 (see Figures 3–3 and 3–4). In 1990, only 49 percent of loans (23 percent of funding) served communities with population less than 10,000, indicating that the CWSRF program has improved service to smaller loan customers. Some states provide specialized assistance for communities that are disadvantaged or experiencing financial hardship. These states might provide loan interest rates that are adjusted downward to provide greater subsidies for disadvantaged communities. Some states establish project affordability targets based on a community’s median household income and the projected annual cost per household that would be experienced by a disadvantaged community after project implementation.

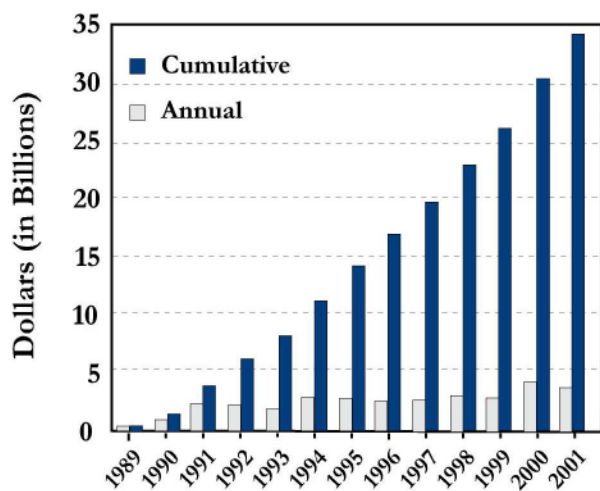


Figure 3–2: CWSRF Funding

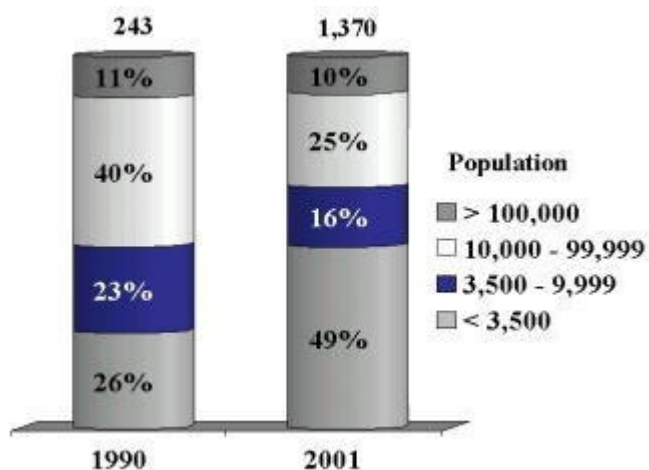


Figure 3-3: Communities Served by the CWSRF (Number of Assistance Agreements)

The CWSRF Program has also been tapped to fund nonpoint source and estuary projects in addition to funding centralized wastewater treatment facilities. In 1990, only one percent of loan agreements made were for nonpoint source or estuary projects. But since then, the number of loans made for nonpoint source or estuary projects has risen rapidly. In 2000, 33 percent of loan agreements were made to fund nonpoint source or estuary projects (see Figure 3-5). The expansion of the CWSRF program into funding nonpoint source and estuary projects has been accomplished while maintaining high funding levels for centralized wastewater treatment facilities (approximately \$29 billion in funding has been

provided through the CWSRF program for centralized wastewater treatment facilities).

Projects Eligible for CWSRF Assistance

The CWSRF program is available to fund a wide variety of water quality projects including all types of nonpoint source, watershed protection or restoration, and estuary management projects, as well as more traditional municipal wastewater treatment projects. Title VI of the CWA establishes the following as eligible for CWSRF assistance:

- Planning, design, and construction of Publicly Owned Treatment Works (CWA section 212)
 - Collection projects including Combined Sewer Overflows/Sanitary Sewer Overflows
 - Treatment including advanced treatment
- Implementation of nonpoint source projects (CWA section 319)
 - Private or public borrowing for projects allowed
- Development and implementation of management plans in 28 National Estuary Programs (section 320)
 - Private or public borrowing for projects allowed

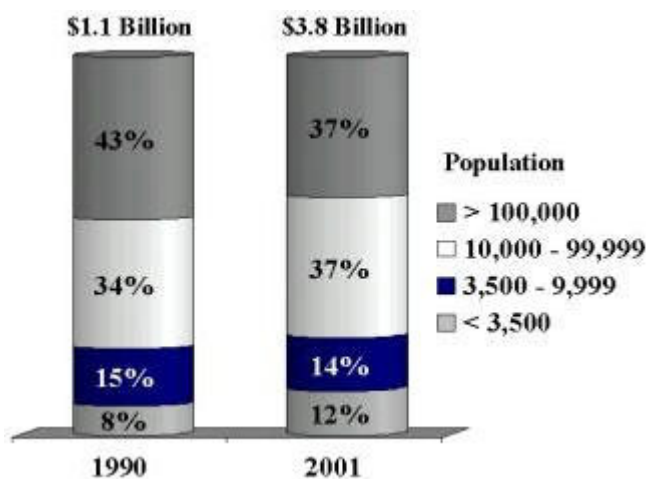


Figure 3-4: Communities Served by the CWSRF (Dollar Amount of Assistance)

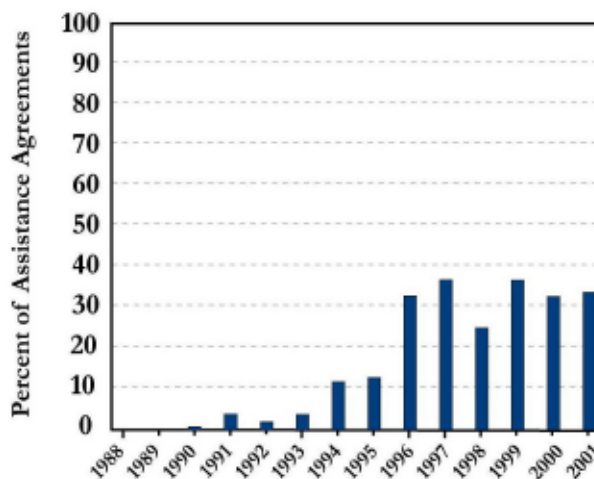


Figure 3-5: CWSRF Assistance for Nonpoint Source and Estuary Protection

State policies vary regarding types of projects funded, as well as whether privately owned projects are eligible for section 319 and section 320 assistance.

CWSRF programs have changed their funding objectives since the program began in the late 1980s. Initially most of the states placed an emphasis on funding projects that were similar to the projects funded under the Construction Grants program. In fact, many initial CWSRF priority systems and project lists were based on the construction grant priority systems and project lists. However, as states successfully made the transition to providing loans for publicly-owned treatment works, CWSRF programs began to focus more on devising loan structures to address nonpoint source water quality projects. As a result, today the CWSRF program has an impressive track record of funding a broad array of projects.

It is likely that states will continue to modify their CWSRF funding objectives over time and find new ways of successfully applying CWSRF funding for new high priority water quality projects due to several important factors including:

- Growing understanding of water quality impairments by watershed and clearer identification of projects and actions necessary to address the impairments
- Increasing local acceptance of low-interest loans for nonpoint source and other watershed protection projects
- Development of successful institutional arrangements and loan structures at the state and local level
- Continuing interest from Congress, EPA, and the public in seeing the CWSRF program fund projects that have the greatest impact on water quality

4. The Role of Other Federal Water Quality Programs

Many sources of water quality funding exist, both at the federal and non-federal levels. The purpose of this section is to provide an overview of relevant funding sources available, such as the EPA nonpoint source and National Estuary Program grant funding programs. This section will also provide a description of other relevant federal funding sources including those of the Rural Utilities Service and the Community Development Block Grant Program.

Clean Water Act, Section 319: Nonpoint Source Funding

According to the *1998 National Water Quality Inventory Report to Congress*, the top sources of water impairment, by percent of total river-miles and percent of total lake-acres, are agriculture, hydromodification, urban runoff, and storm sewers. (See Figures 4-1 and 4-2.) In an effort to address these problems and other sources of nonpoint water quality pollution, funding through section 319 of the

Clean Water Act (CWA) supports projects such as the construction of innovative Best Management Practices (BMPs), the development of nonpoint source education and outreach programs, technical assistance, environmental monitoring, and watershed planning efforts. Total appropriations to address these nonpoint source projects totaled \$100 million per year between 1995 and 1997, \$105 million in 1998, \$200 million for 1999 and 2000, and \$237 million for 2001 and 2002.

Funding through CWA, Section 319

With oversight from the EPA and Regional Offices, states determine how and where funds will be applied. Fund targeting must be consistent with the priorities listed in a state's Nonpoint Source Program Management Plan. Additional conditions, set by EPA, may also be placed on section 319 funds through federally issued guidance. For example, EPA issued a stipulation on fiscal year 2002 funds requiring approximately half of every state's fund amounts to be used for the development of Total

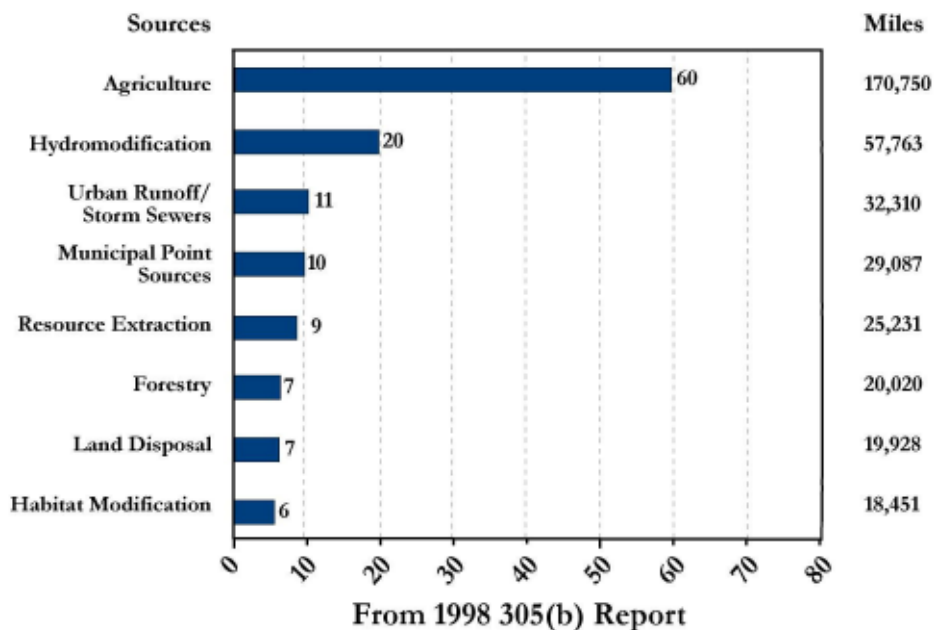


Figure 4-1: Percent Total Impaired River-Miles by Category

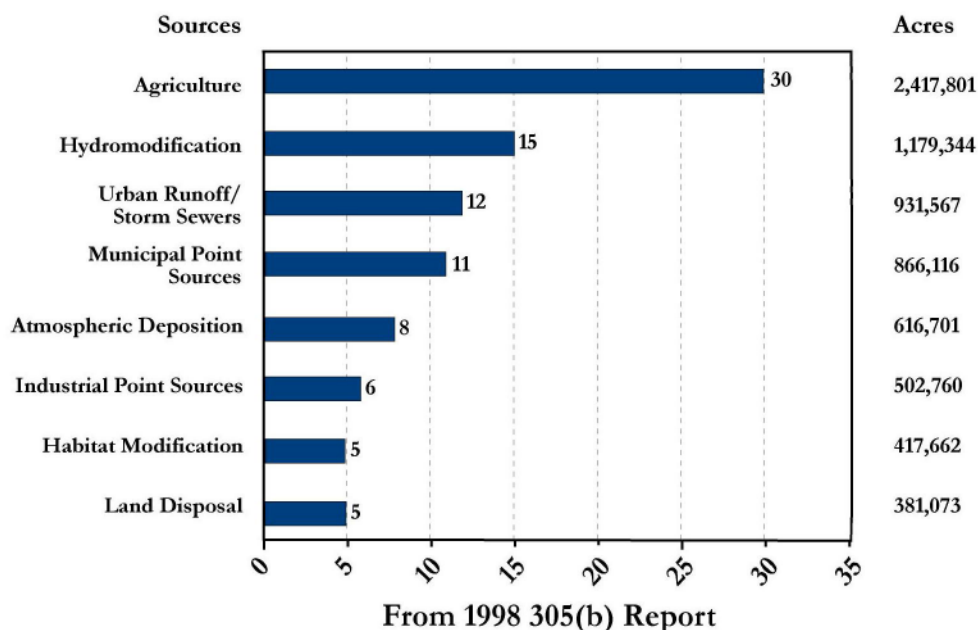


Figure 4–2: Percent Total Impaired Lake-Acres by Category

Maximum Daily Load (TMDL) allocations, plans to implement TMDLs, or implementation of TMDLs.

Fiscal Year 2001 Funding Activity

Of all section 319 grant-funding activities, on-the-ground program implementation received the largest share of spending nationally—\$104.6 million dollars in fiscal year 2001. On-the-ground projects include those related to wetland restoration and abandoned mine reclamation, among others. Remaining grant funds for fiscal year 2001 were allocated with near equivalence to watershed planning, program administration, and nonpoint source education, with \$21.9 million, \$18.2 million, and \$17.5 million dollars granted for each of these uses, respectively.

Clean Water Act, Section 320: National Estuary Program Funding

Established in 1987 through amendments to the Clean Water Act, The National Estuary Program (NEP) was created with the purpose of promoting comprehensive planning, integrating regional monitoring, and coordinating research for significant

national estuaries threatened by pollution, development, and overuse. In order for an estuary to become formally included under this national program, a state governor must first nominate the estuary. Once accepted, according to the CWA, section 320, each NEP must create a Comprehensive Conservation Management Plan (CCMP) to address environmental problems unique to the local environment. To date, a total of twenty-eight individual NEPs have been established.

The Comprehensive Conservation Management Plan

The CCMP is created, and approved, by a broad-based coalition of stakeholders in an effort to address all aspects of estuary protection. The CCMP establishes priorities for funding and guides all future decisions involving the overall health of the estuary. Implementation of the CCMP involves the coordination of many groups, including federal, state, and local agencies. In an effort to avoid the unnecessary duplication of efforts, National Estuary Programs are encouraged to implement CCMPs utilizing existing authorities to the fullest extent possible.

Funding Through CWA, Section 320

CCMPs present the major project areas that will be addressed and the actions that will be taken to implement the CCMP. NEPs determine how they will apply their funds to meet their overall objectives of the CCMP. During fiscal year 2002, NEP grants through CWA section 320 totaled \$17 million following an appropriations increase resulting in a share of approximately \$500 thousand dollars per NEP. Typical shares granted to individual NEPs in the past have averaged \$300 thousand to \$350 thousand dollars.

NEPs are charged with addressing a broad array of problems including nutrient overloading, pathogen contamination, toxic chemical pollution, alteration of natural flow regimes, habitat loss and degradation, decline of fish and wildlife populations, and problems associated with nonnative species. With this in mind, it is often up to individual NEPs to foster creativity when conducting their financial management and planning activities. In many cases, levels of funding required to implement an NEP's CCMP exceed actual project funding available. As a result it has been important for NEPs to build partnerships with state and local agencies to increase the funding for NEP priority projects.

Funding Through Non-EPA Water Quality Programs

Many significant water quality funding opportunities exist outside EPA, including those through such agencies as the U.S. Department of Commerce, the Department of Housing and Urban Development, the Department of the Interior, and the Department of Transportation. When navigating this seemingly complicated landscape of alternate funding programs important tools, such as the Catalogue of Federal Domestic Assistance, exist to provide easy access to all federal funding sources available.

The Catalogue of Federal Domestic Assistance provides information on fifteen types of assistance tools including formula grants, direct payments, guaranteed loans, and technical assistance programs. This online publication contains some 1,482 assistance programs through 63 federal agencies, including the Department of Housing and Urban Development's Community Development Block Grant Program (CDBG) and the Department of Agriculture's Rural Utilities Service (RUS) Water and Wastewater Disposal Program.

Funding Through the Community Development Block Grant Program

The Community Development Block Grant Program (CDBG), under the Department of Housing and Urban Development, receives \$9 billion in annual appropriations. This funding provides assistance to many sub-programs of the CDBG including the Entitlement Program, the Small Cities Program, and the State Program to fund wastewater, drinking water, and other environmental water related projects. Although \$9 billion is available for funding through these and other smaller programs of the CDBG, monies available to fund water quality needs must compete against a whole host of other funding priorities through these programs to receive a portion of the \$9 billion available.

Funding through the CDBG is targeted to low and moderate income rural areas. However, smaller urban areas, with previously designated rural areas, are able to qualify these areas into their surrounding urban county for funding. With this allowance under the CDBG program, some smaller, somewhat rural communities, are able to pull funding from many sources including the CDBG, the RUS, and the Department of Commerce's Economic Development Administration.

Funding Through the Rural Utilities Service

The Rural Utilities Service (RUS), under the Department of Agriculture, provides funding for water quality projects through their Water and Wastewater Disposal Program. This is a large program for rural communities providing both direct and guaranteed loans and grants for water and wastewater disposal. At present, authorizations exceed \$1.5 billion dollars annually.

The RUS Water and Wastewater Disposal Program is focused on providing funding to those lesser developed communities under 10,000 in population. In reference to loan eligibility and rates, the poorest communities will receive rates as low as 4.5 percent,

while higher income communities will receive a rate not to exceed the current market rate available. Rate determinations are dependant upon a community's median household income for all residents.

Total program funding in 2000 included 908 direct loans (\$765 million), 9 guaranteed loans (\$10.7 million), and 765 grants (\$557 million). Funding during 2001 included 200 additional direct loans, an increase of \$75 million for guaranteed loans, and approximately 150 new grants totaling approximately \$100 million dollars. Assistance through both loans and grants under this program were used to fund wastewater, drinking water, stormwater, and solid waste projects for small, rural communities.

5. Funding Decentralized Wastewater Systems

Overview, Policy and State Case Studies

Decentralized treatment systems, commonly referred to as septic systems, include individual onsite systems, cluster systems, and some alternative wastewater technologies. These systems are used to treat and dispose of relatively small volumes of wastewater, generally from households and businesses.

EPA views decentralized systems as a national concern because 25 percent of the population is served by these systems and 33 percent of new home construction adopts decentralized treatment technologies. The growing population served by these systems is not the only concern. Malfunctioning onsite systems are having a significant impact on the nation's water resources. EPA estimates that anywhere from 10 to 30 percent of onsite systems are failing annually, resulting in more than 700 million gallons of improperly treated wastewater being discharged each day.

EPA has identified five major barriers to the successful implementation of decentralized wastewater technologies. These include:

- Misinformation and limited public knowledge about onsite systems
- Legislative and regulatory constraints
- Lack of system management
- Poor existing engineering practices
- Restricted access to funding

To address these barriers, EPA has spent more than \$30 million in programs and activities in the last five years. Most of the EPA-sponsored activities have been targeted toward overcoming one or more of these barriers. Other actions have been taken at the local and state levels to help devise effective management approaches and address funding challenges.

Management of Decentralized Wastewater Systems

EPA has identified five management programs that can be developed for decentralized systems. The management program that best suits a community will depend on the number and type of onsite systems to be managed, the capacity of the local government to take on management responsibilities, the willingness of homeowners and businesses to participate, and the availability of contract operation firms.

The onsite management programs identified by EPA cover new and existing systems and manage surface and subsurface discharges. The types of management programs are:

- System Inventory/Maintenance Awareness—A database is created for onsite system locations and technical support regarding proper siting, installation and maintenance
- Management Through a Maintenance Contract—Homeowners contract with a service provider for routine on site system maintenance
- Management Through Operating Permits—Systems receive an operating permit that establishes requirements for operating performance, engineering design, reporting and monitoring
- Operation and Maintenance by a Designated Management Entity—A professional management entity is responsible for on-site system operation and maintenance; the management entity conducts routine inspections and helps assure consistent performance from privately-owned on-site systems

- Ownership and Operation and Maintenance by Management Entity—A management entity, consistent with other types of utility services (gas, electric), provides professional management of all functions

Many small communities are addressing the need for decentralized system management. For example, Auburn Lake Trails, CA, established a public utility district to manage onsite systems. The public utility district collects fees from homeowners in the area to pay for monitoring, inspection, and maintenance of all the onsite systems within the community. A home in the community pays \$540 for the initial design, inspection, and connection and \$12.50 per month for maintenance fees.

Funding Decentralized Wastewater Systems

The costs for implementing decentralized wastewater systems include program planning, operation and maintenance, and rehabilitation and replacement. There are many local, state and federal funding sources available to communities implementing and managing decentralized systems. One of the largest funding sources available for planning, rehabilitation and replacement is the Clean Water State Revolving Fund (CWSRF) program. Other sources include Community Development Block Grants (CDBG) from the Department of Housing and Urban Development (HUD) and the Rural Utility Service (RUS) loans and grants from the USDA. Although not currently used for this purpose, section 319 grants can also apply to decentralized wastewater treatment systems.

As noted in section three, most CWSRF funding has supported centralized wastewater treatment projects, but thirteen states have provided CWSRF loan funding for onsite systems. Onsite and clustered wastewater systems are potentially eligible for funding depending on state funding guidelines. The CWSRF can fund:

- New system installation (single and cluster systems) to correct an existing nonpoint source problem
- Replacement, upgrade, or modification of inadequate or failing systems
- Costs associated with the establishment of a centralized management entity (permitting fees, legal fees, etc.)
- Capital associated with centralized management programs (e.g., trucks, storage buildings, spare parts, etc.)

Case Studies of CWSRF Loans for Decentralized Systems

Thirteen states fund decentralized systems through the CWSRF program (see Figure 5–1). Many states have devised unique financial arrangements, such as linked deposit programs and pass through loan programs with counties or local agencies to fund water quality improvements.

Under a linked deposit loan approach, a state works with local private lending institutions to provide assistance for nonpoint source pollution control. The state agrees to accept a reduced rate of return on an investment (e.g., a certificate of deposit) and the lending institution agrees to provide a loan to a

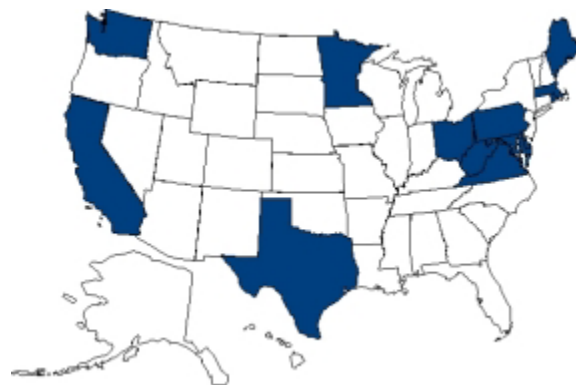


Figure 5–1: States Using the CWSRF for Onsite Systems including California, Delaware, Maine, Maryland, Massachusetts, Minnesota, Ohio, Pennsylvania, Rhode Island, Texas, Virginia, Washington, and West Virginia

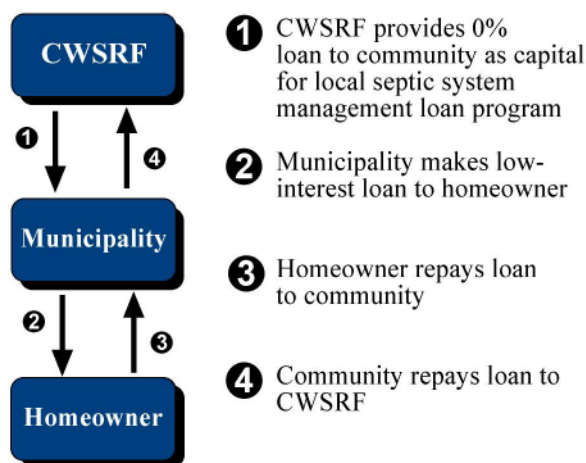


Figure 5–2: Massachusetts Septic Program

borrower at a similarly reduced interest rate. For example, if the typical earnings rate for a certificate of deposit (CD) is five percent, a state might agree to purchase a CD that earns two percent interest, and in exchange, the lending institution agrees to provide a loan to a borrower at an interest rate that is three percentage points lower than the market rate for the borrower. In this program, the CWSRF investment (deposit) is linked to a low-interest loan, thereby earning the description “linked deposit loan.” A linked deposit example is provided below.

In a pass through loan, a CWSRF program makes a loan to another state or local government agency and that agency then lends the funds to private borrowers to address nonpoint source pollution. The town,

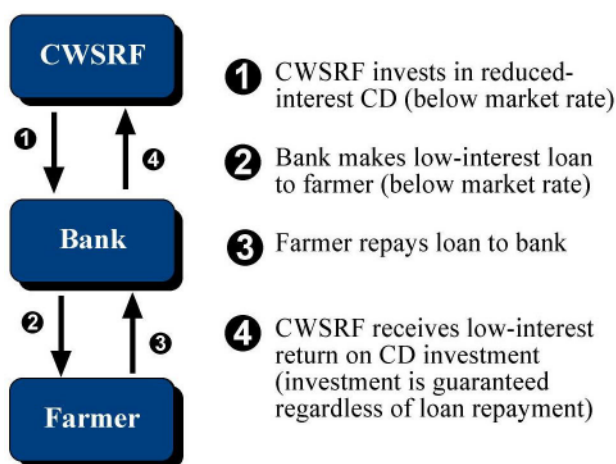


Figure 5–3: Ohio Linked Deposit Program

county, or state agency reviews the project and the finances of each borrower. CWSRF loan funds are “passed through” another government agency to private borrowers. Since 1995, the Massachusetts’ Community Septic Management Program has used pass through loans with local municipalities to fund the repair and replacement of failing septic systems (see figure 5–2). The Massachusetts CWSRF developed this program with the cooperation of local municipalities. CWSRF loans are made to communities at zero percent for up to twenty years. They in turn make loans to individuals for septic repair or replacement at 2 to 5 percent for up to twenty years. So far in Massachusetts 234 communities have participated in this program, completing more than 3,000 projects and making loans for more than \$47 million.

Ohio’s SRF program provides loans to individual homeowners for septic system improvements through a linked deposit program with local banks (see Figure 5–3). Through partnerships with local soil and water conservation districts, to date there have been twenty-nine loans made for a total of \$210,400. Ohio EPA works with local agencies to establish the loans. Ohio’s SRF invests in a reduced interest local bank CD. The bank reviews and approves loans from borrowers, and the bank lends to the applicant at a rate reduced by the amount of the SRF CD discount. The banks take on the default risk of the loan for the interest they receive. There is no additional cost to the bank for their participation. Through their normal fee structure, banks recoup all administrative expenses related to the issuance of these loans. Borrowers prefer this process because they deal with familiar banks and the Ohio SRF approves of this program because the administrative burden of loan review falls on the banks. Ohio has not seen the volume of loans they expected for septic improvements. The state feels they need to do more research and find reasons for the lack of urgency for septic improvements. Increased outreach is one solution the state is considering for the future.

6. Funding Watershed Protection and Nonpoint Source Pollution Control Projects

While centralized and decentralized wastewater treatment are critical to the success of national water quality efforts, water quality initiatives are increasingly recognizing the importance of watershed protection and nonpoint source pollution control projects. As noted in section four, many federal programs support nonpoint source pollution prevention. Section four provides further discussion about EPA’s Nonpoint Source Grants program; this section provides more detail about two other sources of funding for nonpoint source activities: EPA’s Clean Water State Revolving Fund and USDA’s conservation funding programs.

Using the Clean Water State Revolving Fund Program for Nonpoint Source Activities

Nonpoint source and estuary projects have been an eligible use of CWSRF funds since the program was created by the 1987 Amendments to the Clean Water Act. However, for the first seven years of program operation, states funded few projects of this type (see figure 6–1). Therefore, while the CWSRF program has spent more than \$1.4 billion to address nonpoint source pollution, \$1.3 billion of this total has been spent since 1995 (\$184 million per year, on average). While \$184 million is a small percentage of the \$3.3 billion in average annual assistance provided by the CWSRF program in the same time period, this figure is comparable to the annual volume of assistance provided by EPA’s section 319 nonpoint source grants program. It is also worth noting that while nonpoint source projects have used only six percent of CWSRF funds since 1995, these projects have accounted for 31 percent of all CWSRF loan agreements in that time.

Through fiscal year 2001, thirty states have used their CWSRF programs to support nonpoint source

projects. Every year a few more states have learned to use their CWSRF programs to fund these types of activities. At least three states are working to fund their first nonpoint source projects in fiscal year 2002.

CWSRF programs have supported a wide variety of nonpoint source projects. CWSRF funds have supported the purchase or rehabilitation of wetlands and riparian zones and the purchase of conservation easements. They have supported stormwater management projects such as sediment traps and basins, wetland flood guards, and vegetative plantings. They have supported many agricultural BMPs, including waste management systems, manure spreaders, dead bird composters, conservation tillage equipment, irrigation equipment, filter strips, streambank stabilization, and education programs. And CWSRF funds have supported the removal and remediation of underground storage tanks (USTs), the removal of contaminated soils, and the installation of monitoring equipment—often as part of brownfield remediation projects.

The success of CWSRF programs that have funded nonpoint source projects has often been due to partnerships with other state agencies, local

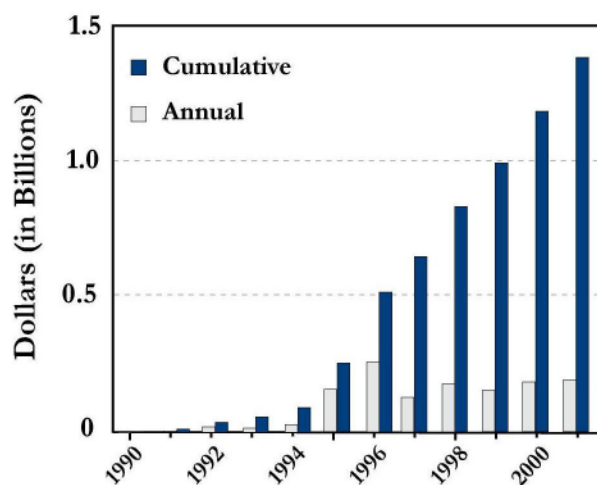


Figure 6–1: CWSRF Spending on NPS Projects

government loan programs, local offices of the Natural Resources Conservation Service (NRCS), and local banks. For example, as discussed in section five, Ohio's CWSRF worked closely with local conservation officials and local banks to establish a loan program for private nonpoint source projects. Maine's CWSRF has worked closely with the Maine State Housing Authority, a state agency, to establish a homeowner loan program for septic tank rehabilitation and replacement. Minnesota's CWSRF funds an agricultural best management practice loan program that is managed by the State Department of Agriculture and works closely with local governments, local conservation officials, and local banks.

Some members of the public have expressed concern regarding the relatively low level of CWSRF financial assistance provided to nonpoint source projects and decentralized wastewater treatment. States have the option to use their CWSRF to fund any type of project eligible under the Clean Water Act. In some cases states continue to focus on larger centralized systems that are in need of low-interest loan funding. Other states are making a strong effort to expand the use of the CWSRF program to address nonpoint source pollution control projects including onsite or decentralized wastewater treatment. States that have not yet focused on nonpoint source and decentralized wastewater treatment believe that it is critical to use the CWSRF program to encourage communities to repair, replace, or upgrade treatment for centralized systems in urban and suburban areas. With this emphasis, states are helping to prevent a reversal of the progress made to date through the use of secondary and advanced wastewater treatment. In addition, many states identify a lack of institutional structures as a barrier to providing assistance.

Many states indicate that they are willing to provide funding for nonpoint source pollution control or decentralized wastewater treatment, but they have not been successful because of a lack of capacity at the local level to implement a project and repay a loan.

Local constituencies are critically important to the successful implementation of a states' CWSRF program. Local governments and other constituencies can help by communicating to the CWSRF program what priorities should be addressed, showing a willingness and strong desire to undertake projects, and helping to identify sources to repay low-interest loans. As seen in many states, where there is a strong desire at the local level to use the CWSRF to fund nonpoint source projects, states have responded with creative loan structures and high funding levels.

Minnesota's Agricultural Best Management Practices Loan Program

Minnesota has issued more Clean Water State Revolving Fund loans for nonpoint source pollution projects than any other state. Since 1995, fifty-one million dollars in loans have funded more than 4,500 projects. CWSRF loans have helped to implement county watershed plans by funding agricultural waste management systems, conservation tillage equipment, structural erosion control practices, and rural septic systems.

Three parties participate in loan management in the Agriculture Best Management Practices Loan Program: the Department of Agriculture, a local government unit, and a lending institution (see figure 6–2). The Department of Agriculture is responsible for the implementation of the program on a statewide level. It advertises the availability of zero-interest funding for the implementation of county watershed plans and requests applications. With the assistance of a stakeholder committee, the Department reviews the applications of local government units and awards funding. The stakeholder committee recommends priority funding for local government units that submit applications that tie the problems, causes, solutions, implementation priority, and benefits into a well-

organized implementation plan.

The local government unit (typically a county or Soil and Water Conservation District) has numerous responsibilities. It solicits projects and certifies that they are eligible for CWSRF funding. It inspects completed projects and certifies that they comply with accepted standards, specifications, and criteria. The local government unit also submits an annual report to the Department of Agriculture on all program activities.

Local lending institutions include banks, savings and loan associations, credit unions, non-profit economic development organizations, and Farm Credit Services. Each lending institution evaluates, approves, and manages loans to certified borrowers. The CWSRF distributes funds to the borrower via the lending institution on a cost-incurred basis. For

every CWSRF loan, the lending institution guarantees repayment of principal to the Department of Agriculture. As compensation for these services, the lending institution receives a half percent origination fee and three percent interest on the loan.

Minnesota's Agricultural Best Management Practices Loan Program has been very successful in applying CWSRF funds to nonpoint source projects. Its success has been due, in large part, to partnerships between the CWSRF, the State Department of Agriculture, local governments, local conservation officials, and local lending institutions. However, other partnerships have also contributed to its success—such as the partnership between this low-interest loan program and state and federal cost-share programs.

Funding for Water Quality from the U.S. Department of Agriculture

The U.S. Department of Agriculture (USDA) uses a variety of assistance programs to address water quality issues. These assistance programs all use incentives to encourage science-based, site-specific solutions that are part of locally led management efforts. USDA's primary conservation programs are the Environmental Quality Incentives Program (EQIP), the Wetlands Reserve Program (WRP), the Conservation Reserve Program (CRP), and the Small Watershed Program.

The Environmental Quality Incentives Program offers financial, educational, and technical help to farmers and ranchers to help them install or implement structural, vegetative, and management practices. EQIP works primarily in locally identified priority areas with significant natural resource concerns related to soil erosion, water quality and quantity, wildlife habitat, wetlands, and forest and grazing lands.

EQIP offers 5 to 10 year contracts that provide

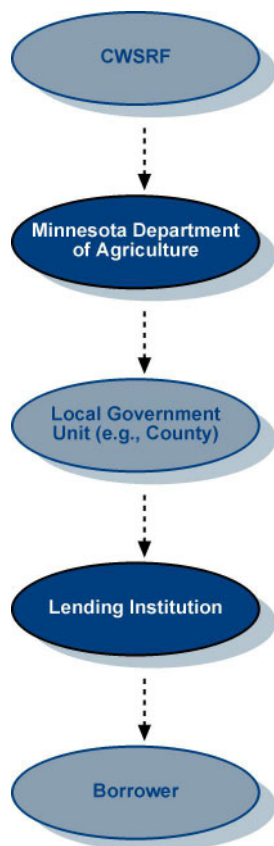


Figure 6–2: Minnesota Agriculture BMP Loan Program

incentive payments and cost sharing for conservation practices. Cost sharing may pay up to 75 percent of the costs of certain conservation practices, such as grassed waterways, filter strips, manure management facilities, capping abandoned wells, and other practices important to improving and maintaining the health of natural resources. Incentive payments may be made to encourage a producer to perform land management practices such as nutrient management, manure management, integrated pest management, irrigation water management, and wildlife habitat management. Total cost-share and incentive payments are limited to \$10,000 per person per year and \$50,000 for the length of a contract. EQIP has provided assistance of \$200 million per year each year since it was created by the 1996 Farm Bill.

The Wetlands Reserve Program offers financial and technical assistance to landowners for the purpose of reserving, protecting, and enhancing wetlands. Landowners who choose to participate in the WRP may sell a conservation easement or enter into a cost-share restoration agreement with USDA to restore and protect wetlands. The landowner voluntarily limits future use of the land, yet retains private ownership. The landowner and Natural Resources Conservation Service (NRCS) then develop a plan for the restoration and maintenance of the wetland. The program offers landowners three options: permanent easements, 30-year easements, and restoration cost-share agreements of a minimum 10-year duration. USDA has enrolled about one million acres in this program.

The Conservation Reserve Program and the Conservation Reserve Enhancement Program offer financial and technical assistance to landowners for the purpose of reducing soil erosion, reducing sedimentation in streams and lakes, improving water quality, establishing wildlife habitat, and enhancing forest and wetland resources. The programs encourage farmers to convert highly erodible cropland or other environmentally sensitive acreage

to vegetative cover, such as tame or native grasses, wildlife plantings, trees, filter strips, or riparian buffers. Through the Conservation Reserve Program, USDA provides farmers with an annual rental payment for the term of a 10 to 15 year contract. Cost share assistance provides up to 50 percent of the costs of establishing vegetative cover practices. The Conservation Reserve Enhancement Program is a partnership between state governments and the federal government to provide additional incentives for land retirement for farmers in priority areas.

The Small Watershed Program provides financial and technical assistance to watershed protection and flood protection projects that are too big to be handled by individual landowners but not extensive enough to be supported by large federal and state projects for water resource development in major river valleys. Watershed projects funded by the Small Watershed Program may be up to 250,000 acres in size. This program can fund structural projects, nonstructural projects, and land treatment measures.

7. Exploring How States Consider Environmental Outcomes

State CWSRF programs direct their resources to high-priority public health and water quality needs. The environmental outcomes of potential CWSRF projects are considered in two ways: project priority lists and environmental review. Each plays a different role in the CWSRF program.

The Role of Priority Lists and Environmental Review

All municipal treatment projects must be ranked on a current CWSRF priority list to be eligible for CWSRF assistance. States use this priority list to develop their Intended Use Plan (IUP). Each state has developed its own system to rank projects, but ranking systems often consider factors such as the value of the water resource affected by a project, the degree to which that resource is impaired or threatened, and the expected effectiveness of a project.

All municipal treatment projects are required to go through an environmental review process, which is completed after the creation of a state's priority list. The environmental review process considers the direct and indirect impacts of a project, present and future conditions, cumulative impacts including community growth within the study area, land use and social parameters, coordination with other public works projects, and a no-action alternative.

Integrated Planning and Priority Setting

While states are required to rank potential municipal treatment projects in priority order as part of the project selection process, states are not required to include nonpoint source and estuary projects on this project priority list. Nor are states required to select the highest priority projects from this list for inclusion in each year's Intended Use Plan for CWSRF funds.

As states began lending to a wide variety of nonpoint source and estuary projects in the mid-1990s, some states wished to fund projects with a primary purpose other than water quality protection. For example, some wished to fund new municipal solid waste disposal facilities. Elements of these solid waste disposal projects may protect water quality, but their primary purpose is waste disposal.

To address this issue, a state/EPA workgroup engaged in a year-long dialogue to consider how states could evaluate their environmental priorities and develop an integrated list of priority projects appropriate for CWSRF funding. *The Clean Water State Revolving Fund Funding Framework: Funding to Solve Our Nation's Water Quality Problems* (referred to hereafter as the *Funding Framework*) outlines the resulting policy and recommendations of the workgroup.

The *Funding Framework* requires that a state use an integrated planning and priority setting system if it intends to fund nontraditional projects (projects with a primary purpose other than water quality). As part of this agreement, if a state funds nontraditional projects, it must offer funding to all projects based upon their priority ranking. EPA does not require that a state fund projects in strict priority order, but funding decisions must be consistent with this ranking. Despite the *Funding Framework's* focus on nontraditional projects, it encourages all states that fund nonpoint source and estuary projects to integrate their planning and priority setting systems—so that CWSRF funds can most effectively target the nation's water quality problems. Eighteen states currently use integrated systems.

The EPA document *Integrated Planning and Priority Setting in the Clean Water State Revolving Fund Program* identifies four major activities within an integrated planning and priority setting system: identifying water quality priorities, assessing the CWSRF role,

undertaking outreach efforts, and selecting priority projects (see Figure 7–1).

Water quality priorities provide a context for the activities of the CWSRF program. CWSRF resources should address these priorities in the most efficient manner possible. State water quality priorities also provide a valuable standard against which a state can measure the success of its water quality programs, i.e., has the state used its resources to address its highest water quality priorities? A state's water quality program should be the CWSRF's major resource in identifying the state's water quality priorities. A water quality program has typically developed its understanding of the state's priorities by considering water quality information from many sources.

The CWSRF is one funding source of many available to each state for water pollution control. For this reason, a state must determine the CWSRF's role in addressing the state's water quality priorities. This assessment will help to direct CWSRF outreach efforts and project selection. It will also enable the state to measure the program's success.

Outreach efforts are an often overlooked component of integrated planning and priority setting systems. Outreach efforts enable a CWSRF program to ensure

that it attracts high priority projects. Finely crafted priorities and ranking systems will only enable a state to address its highest priority water quality issues if the program has attracted appropriate projects to the program. Many CWSRF programs have targeted geographic areas and threats to water quality in their outreach efforts. Some have partnered with other state programs to more effectively recruit high priority CWSRF projects.

After a state has established water quality priorities, defined the CWSRF role, and developed a promising pool of applicants, it then selects its highest priority projects. The *Funding Framework* suggests two methods of selecting projects—one uses a goals approach, and the other uses an integrated ranking system designed to equally evaluate municipal wastewater, nonpoint source, and estuary projects. A state may use either of these suggested methods to select projects for its IUP or it may develop its own method. To date, all but one of the eighteen states with integrated planning and priority setting systems have chosen to prioritize projects with an integrated ranking system.

Some members of the public have expressed concern that priority ranking systems do not consider the cost-effectiveness of potential projects. Some states have explored the idea of incorporating this consideration into their ranking systems, but this idea has not been implemented to date.

Examples of State Ranking Systems

Ohio and Rhode Island both use the integrated ranking system approach described in the *Funding Framework*, but the systems are markedly different. Ohio has extensive data sources that document the health of state water bodies. The state's integrated ranking system is therefore quite complex to take advantage of those resources. Conversely, Rhode Island's system is relatively simple, as it was designed to be transparent to the public, to require very little staff time for implementation, and to be highly consistent.



Figure 7–1: Major IPPS Activities

Delaware uses a project ranking system that has many similarities to that used by the *Funding Framework's* goals approach. The state's nonpoint source management plan identifies nonpoint sources as a significant cause of the state's water quality problems. For this reason, each year Delaware considers using approximately 20 percent of its available CWSRF funding for projects that address nonpoint source pollution.

8. How to Tackle Environmental Performance Tracking

Water Quality Funding for Wastewater Treatment Efforts

In an effort to address national water quality pollution problems, EPA, in coordination with state agencies, has worked to fund Publicly Owned Treatment Works (POTWs) and other water quality improvement projects. Since 1970, EPA has provided \$61.1 billion dollars through the federal Construction Grants program and \$18.3 billion through the Clean Water State Revolving Fund (CWSRF) loan program for such wastewater treatment projects. When also including investments provided by the state, local, and private sectors, the total national capital investment in wastewater treatment technology far exceeds \$200 billion dollars, with a comparable amount dedicated to operation and maintenance costs.

Through the years, the relative mix of these wastewater projects has varied by project type, from funding for new wastewater treatment infrastructure to improvements in treatment technology (see Figure 8–1). The proportional share of funding for secondary and advanced wastewater treatment through the CWSRF has been on a steady decline, from more than 80 percent in 1989 to less than 50

percent by the year 2000. Today, more than 50 percent of all CWSRF dollars go toward other projects including nonpoint source treatment, estuary protection, storm sewers, combined sewer overflow correction, new interceptor sewers, new collector sewers, rehabilitation of sewer systems, and infiltration or inflow correction.

Environmental Performance Tracking

Efforts to accurately track overall performance are critical to ensure water quality assistance programs are effectively meeting their intended environmental goals. Many groups including the EPA, states, Congress, and other special interest groups are interested in the cost-effectiveness of nationally dedicated funds for wastewater treatment improvements, and the level of associated benefits for national water quality.

Accurately conducting environmental performance tracking has been a challenge at the national level. The EPA measures pollutants and effluents by industry, but the overall collective effects of many industry discharges to a particular area or watershed are still largely unknown. However, steps are now

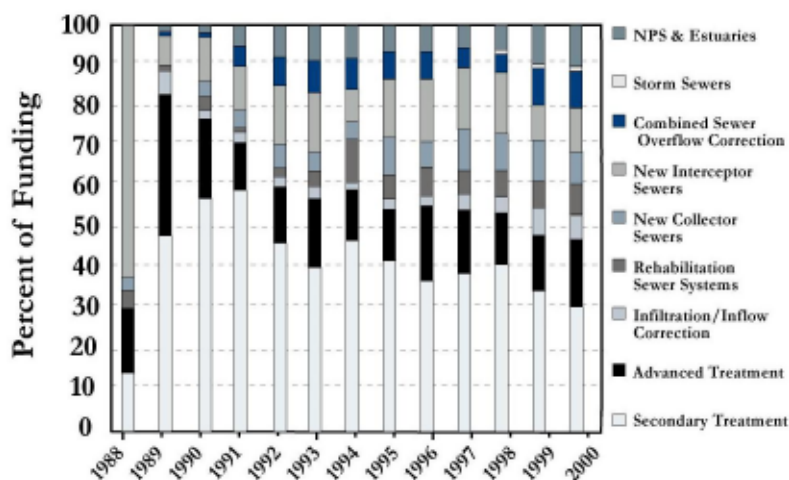


Figure 8–1: CWSRF Funding by Category

being explored, through environmental modeling, to gain a better understanding of our national efforts to improve overall water quality.

In a recent EPA report titled *Progress in Water Quality: An Evaluation of the National Investment in Municipal Wastewater Treatment*, the EPA discusses changes in biochemical oxygen demand (BOD) in POTW effluent and changes in dissolved oxygen (DO) levels downstream from point sources. Nine case studies were documented and analyzed through this 450-page technical report. Models were then created based on these highlighted case studies to allow EPA to quantify potential water quality improvements by POTW treatment innovations. By using these models, EPA revealed that although population size increased by 35 percent between 1968 and 1996, and influent loadings were also increasing during this same period, wastewater treatment improvements contributed to a 45 percent decrease in BOD₅³ and a 23 percent decrease in BOD_U⁴ effluent discharges. Collective removal efficiency rates nationwide for BOD₅ and BOD_U increased from 63 percent and 39 percent respectively in 1968 to 85 percent and 65 percent respectively in 1996. Based on the results of this study, modeling seems the best alternative option for illustrating such results, successful prevention efforts, and for determining on-the-ground compliance outcomes on a national basis. An accurate means to measure such pollutant removal rates is imperative for our ability to best apply and track the effectiveness of federal funding for water quality improvement projects.

Innovations in Environmental Performance Tracking

Data collected through such projects as the Clean Water Needs Survey (CWNS) can serve as a useful tool for tracking wastewater needs, spending, and, when modeled geographically, water quality conditions. Specifically, in an effort to gain a comprehensive understanding of overall environmental performance, EPA developed BASINS

(Better Assessment Science Integrating Point and Nonpoint Sources), a Geographic Information System (GIS)-based water quality modeling program to track environmental performance using data from many sources including the CWNS database. This software was originally released in September 1996 to meet the needs of EPA water programs and state and local pollution control agencies. The most recent version of the BASINS software system (BASINS 3.0, June 2001) is available through the EPA website.

GIS-Based Environmental Performance Tracking

In the past, efforts to measure environmental success, including watershed-based needs accounting, were limited by an inability to track data by geographic location. Today, regional, state, and local agencies are able to model water quality data through BASINS in an effort to gain an overall understanding of environmental performance. Such GIS-based environmental assessment and modeling can facilitate the examination of environmental information. Data and information included for modeling through this software package include water quality monitoring station summaries, bacterium monitoring state summaries, data from weather stations sites, data from U.S. Geological Survey gaging stations, information from the National Sediment Inventory (NSI), and the CWNS Database.

The Development of Environmental Indicators through GIS

The modeling of environmental indicators, or variables, is an important means to assess the impact of CWSRF funded projects in meeting the overall public and environmental health objectives of EPA.

3 BOD₅ represents the biochemical oxygen demand from the decomposition of carbon over an incubation period of five days, at 20 degrees Celsius.

4 BOD_U represents the biochemical oxygen demand from the decomposition of ammonia, organic matter, and carbon upon ultimate completion of the decomposition process.

Such indicators are measured and modeled at the regional and federal levels and are based on many data sources. Results of modeling these indicators systematically through Geographic Information Systems can be used for environmental performance tracking at the regional level. EPA can use the results of these models to evaluate the overall performance of individual CWSRF funded projects in reaching the ultimate goals of enhanced public health and sound aquatic ecosystems.

The Future of Environmental Performance Tracking and Modeling

Geographic Information Systems, such as BASINS, are available for use to coordinate such information as nonpoint source, stormwater, and wastewater data. Such GIS systems allow users at the state level to

track many details of water quality simultaneously, through time, and by location. Through GIS analysis, it will be possible to analyze water quality in combination with relevant socioeconomic indicators in an area including population demographics, land use patterns, transportation networks, and other infrastructure indicators.

As many states move toward watershed level environmental management, performance tracking and GIS modeling can now take measure of overall conditions and stressors for an entire watershed, not just conditions surrounding an individual discharger. As these models are refined over time, performance tracking activities will become easier for all interested parties including Congress, the public, and state, local, and federal authorities.

9. Encouraging Efficient Wastewater Management

Studies by EPA and others suggest that the nation's existing wastewater infrastructure will require large investments in coming decades. At the same time, additional funding will be required to address decentralized wastewater systems, stormwater runoff and nonpoint sources of pollution. It is clear that communities will face significant challenges in addressing all funding needs. As a result, it is important to recognize that local efforts to enhance efficiency and lower costs will be critical to meeting the funding challenge.

In devising principles that will help guide Agency efforts to address the future water quality funding challenges, EPA identified the following as key principles that can guide local governments as they work to enhance local wastewater management efficiency:

- Sustainable wastewater systems
- Reliable decentralized wastewater management
- Watershed-based decision making
- Technology innovation

Sustainable Wastewater Systems

Efforts to build local capacity to efficiently run wastewater systems will be critical in the future. "Capacity" can be defined as having adequate technical, financial and managerial skills and experience needed run a wastewater system. Technical capacity refers to a system's ability to effectively operate and maintain the wastewater collection and treatment system. Financial capacity refers to the ability of the system to maintain an adequate user charge system and effectively manage the financing of capital projects and other financial duties. Managerial capacity refers to effectiveness and efficiency of the management structure of the system. Should a system be lacking in these areas, it may be appropriate to consider opportunities to join

with or consolidate their system with another to achieve greater economies of scale and increase technical skills and experience levels.

Many wastewater systems are already exploring innovative and comprehensive management techniques to improve efficiency and reduce future costs. Several of the often mentioned techniques are asset management and environmental management systems.

Asset Management

Asset management has received a significant amount of attention as a technique that will help wastewater systems continuously and comprehensively manage collection and treatment system assets. Asset management calls for a full accounting of a facilities assets, documenting the condition, service level, useful life and expected replacement costs. The combination of this data produces a clear vision of how best to maintain the system, the timing of asset replacement projects and their costs over time. There is a growing need within the wastewater industry to develop this type of management approach to ensure that financial resources will be able to keep up with the growing capital needs. Proper wastewater asset management can help to lessen the financial burden of system repair and replacement.

Environmental Management Systems

Environmental Management Systems (EMS) are another technique that enhances wastewater system performance and helps facilities meet their environmental goals. By helping to identify the causes of environmental problems and then eliminating them, an EMS can help keep costs down. Advantages for a wastewater facility adopting an EMS are:

- Improved environmental performance
- Enhanced regulatory compliance

- Pollution prevention and/or resource conservation
- Increased efficiency
- Reduced costs
- Enhanced image with public, regulators, lenders, and investors
- Employee awareness of environmental issues and responsibilities

Currently, EPA is working on developing an EMS framework that will detail and coordinate various management programs and techniques available to utility managers today. EPA is working with two water industry associations and will develop focused recommendations regarding integration of management programs into an overall EMS framework. The EMS framework will encourage EMS implementation with complementary asset management and benchmarking programs to create a comprehensive wastewater management system.

San Diego, California provides an example of EMS implementation. The city's EMS program focuses on reductions in energy consumption, chemical usage, solid waste disposal, and potable water use. Positive results are occurring in many areas of the facility. Electrical use in one plant has been reduced by 10 percent and chemical usage been reduced by 8 and 30 percent in two other plants. The use of the EMS has also left the city better prepared to respond to any new or modified wastewater standards or requirements that occur in the future.

Reliable Decentralized Wastewater Management

Other sections of this report discussed why management of septic, cluster, or other decentralized systems is essential to maintaining and improving water quality. EPA recognizes that properly installed and managed decentralized wastewater systems are a cost-effective long-term option for meeting public health and water quality goals. The Agency also sees

decentralized systems as being critical to the nation's long-term solution to water pollution control. Efforts to improve the capacity to manage decentralized systems locally or regionally are critically important to achieving the goals of the Clean Water Act. EPA will continue efforts to improve local capacity to manage decentralized wastewater treatment solutions. The Agency will also continue to provide technical support for the development of decentralized system management and will continue to encourage available funding programs, including the CWSRF program, to properly consider decentralized systems in project priority systems.

Watershed-Based Decision Making

Traditionally, water quality programs have focused on specific sources of pollution, such as sewage discharges, or specific water resources, such as a river segment or wetland. While this approach may be successful in addressing specific problems, it often fails to address the more subtle and chronic problems that contribute to a watershed's decline. For example, pollution from a sewage treatment plant might be reduced significantly after a new technology is installed, and yet the local river may still suffer if other factors in the watershed, such as habitat destruction or polluted runoff, go unaddressed. Watershed management can offer a stronger foundation for uncovering the many stressors that affect a watershed. The result is management better equipped to determine what actions are needed to protect or restore the resource.

Efficiency is also increased once all agencies with natural resource responsibilities begin to work together to improve conditions in a watershed. In its truest sense, watershed protection engages all partners within a watershed, including federal, state, tribal and local agencies. By coordinating their efforts, these agencies can complement and reinforce each others' activities, avoid duplication, and leverage resources to achieve greater results.

Funding programs should play a critical role in watershed-based management. Coordination of the many funding approaches available can be a daunting task, but is important to ensure that available funding is used for high priority watershed protection and restoration projects. Building this capacity at the local level will help ensure that future funding challenges can be met.

Ohio's Water Resource Restoration Sponsor Program provides an example of how a CWSRF program can be tapped to address multiple problems within a watershed. In Ohio's Water Resource Restoration Sponsor Program municipalities pair up with restoration partners such as a land trust or a park district and access the Ohio CWSRF program for project funding. Municipalities receive a CWSRF loan that will cover the costs of a wastewater treatment system project and a watershed restoration project. The watershed restoration project is undertaken by an experienced non-governmental organization partner, such as a land trust. To encourage these partnerships, Ohio's CWSRF

program lowers the interest rate on the CWSRF loan to the municipality so that the annual cost would be equal to or slightly below the cost that they would have experienced with a project loan that excluded the restoration project. This program reinforces the idea that wastewater treatment and watershed restoration have the same goal—water quality.

Technology Innovation

There are many new innovative treatment technologies and wastewater systems currently available or being developed. These technologies address many aspects of water pollution control including wastewater treatment, combined sewer overflows, stormwater controls, decentralized systems, etc. Moving forward, it will be important for all interested parties to support the development of more cost effective and efficient water pollution control technologies. Regulatory barriers making it difficult to use alternative or innovative technology will need to be addressed and state and/or financial incentives may be necessary to encourage the implementation of innovations.

APPENDIX A

Committee & Conference Language

Conference Report on H.R. 2620, Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, 2002 (House of Representatives—11/6/01)

“The conferees expect the Agency to develop a broad working group to review and address the spectrum of wastewater issues as outlined in the House Report accompanying H.R. 2620, request that the Committees on Appropriations be kept apprised of all activities of the working group, and further request that the working group, with the assistance of the Agency, prepare and submit to the Committees on Appropriations by July 15, 2002 a report addressing all matters as outlined in the House Report as well as those additional issues determined appropriate by the working group.”

Committee Report—House Rpt. 107–159—
Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Bill (7/25/01)

“Recent studies by EPA and others suggest that there has been a substantial deterioration in the nation’s wastewater infrastructure, including aging wastewater treatment plants and leaking sewer collection systems. Substantial contributions of wet weather flows and other nonpoint sources of pollution have also been identified. In addition, the additional expenditures needed to achieve TMDL requirements and groundwater protection in future years are expected to be extensive. Because the federal government funds only a portion of wastewater infrastructure investments, the states have urged maximum flexibility in their allocation of federal resources, so as to direct investments at the point source and nonpoint source areas of greatest need. However, states also recognize that they must be held accountable to the goals of the Clean Water Act, the

Safe Drinking Water Act, and other wastewater-related federal statutes. The Committee is aware that septic system repair and management projects and other nonpoint source pollution prevention and control measures, which can produce substantial benefits of water quality protection, are not eligible for SRF funding in most of the states. Further, many recipients of federal wastewater assistance have not instituted user fees to provide for long-term maintenance and repair of the infrastructure, and the results of that lack of maintenance are now evident.

To help address this situation, the Committee strongly urges EPA to, within 60 days of enactment of this Act, establish a working group of representatives from the State/EPA SRF Work Group, the Environmental Council of the States, Environmental Finance Centers, and centralized and decentralized wastewater and nonpoint source stakeholder groups to address the basic means by which EPA may accord flexibility to the states and yet also assure that federal investments achieve the greatest possible benefits. Specifically, the following questions should be among those addressed by this new working group: (1) are the SRF and other federal financial assistance programs achieving maximum water quality protection in terms of public health and environmental outcomes; (2) are alternatives other than wastewater treatment plants and collection systems eligible for federal assistance, and, if not, why not; (3) do the priority ranking systems which states use to prioritize eligible treatment works projects properly account for environmental outcomes, including indirect impacts from air deposition of treatment plant effluent or stormwater runoff from sewer construction-induced growth; (4) are recipients of federal assistance required to adopt appropriate financial planning methods, which would reduce the cost of capital and guarantee that infrastructure would be maintained;

and (5) have sufficient performance measures and information systems been developed to assure the Congress that future federal assistance will be spent wisely by the states?

The Committee expects to be kept appraised of the development of this new working group and further expects that the group will prepare and submit to the Congress by July 15, 2002, a report addressing the aforementioned questions and other related issues it deems relevant.”

APPENDIX B

Registration List and Workshop Agenda

Paying for Water Quality Workshop March 14-15, 2002 Registration List						
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APPENDIX B: Registration List and Workshop Agenda

Paying for Water Quality Workshop March 14-15, 2002 Registration List						
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Paying for Water Quality Workshop March 14-15, 2002 Registration List						
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**OVERVIEW AND WORKSHOP AGENDA
PAYING FOR WATER QUALITY:
MANAGING FUNDING PROGRAMS TO
ACHIEVE THE GREATEST ENVIRONMENTAL BENEFIT**

**March 14–15, 2002
EPA East Building, Room 1153
1201 Constitution Ave., NW
Washington, DC**

Overview

The Environmental Protection Agency will hold a public workshop to discuss how water quality funding programs can be managed and enhanced to achieve the greatest environmental benefit. The Committee on Appropriations, in House Report 107-159, requested that EPA host this forum (House Committee and Conference language has been included)

This workshop will review EPA and state policy regarding use of the Clean Water State Revolving Fund and other funding options for water pollution abatement. The focus of the workshop is on funding programs as currently authorized by Congress and will not address federal legislative activities.

EPA has invited representatives from the EPA/State SRF Work Group, the Environmental Council of the States, the Environmental Finance Centers, and centralized and decentralized wastewater and nonpoint source stakeholder groups. The general public is also encouraged to attend. Participants will have the opportunity to openly discuss concerns and possible solutions.

**PUBLIC WORKSHOP AGENDA
PAYING FOR WATER QUALITY:
MANAGING FUNDING PROGRAMS TO
ACHIEVE THE GREATEST ENVIRONMENTAL BENEFIT
MARCH 14–15, 2002**

March 14, 2002

TIME

I. INTRODUCTION

9:00 AM

This session will discuss EPA's goals for the two-day public workshop.

- EPA Welcome, workshop purpose and objectives (Rich Kuhlman, USEPA)
- Agenda overview and introductions (Mark Kellett, Northbridge Environmental)

II. WATER QUALITY FUNDING TODAY

9:30

This session will discuss how water quality protection efforts have been funded historically and how they are funded today. This session will also discuss future funding challenges and EPA principles to address the challenges.

- US History (Jordan Dorfman, USEPA)
 - Funding levels and financing sources in the US
 - Types of water pollution controls funded
 - Results
- Future funding challenges: Wastewater Needs Survey and "Gap" report EPA principles to address the "gap" (Angela Anderson, USEPA)

BREAK

10:15

III. OVERVIEW OF CLEAN WATER STATE REVOLVING FUNDING PROGRAM

10:30

The Clean Water State Revolving Fund is the largest source of water quality financing assistance. Many workshop registrants do not have an up-to-date understanding of the CWSRF program, and this session will provide an overview.

- What is the CWSRF and how does it work? (Stephanie VonFeck, USEPA)
 - What projects are eligible under CWSRF?
 - What are state CWSRF programs funding?
 - How do they set priorities?
 - How do states consider affordability

IV. THE ROLE OF OTHER FEDERAL WATER QUALITY FUNDING PROGRAMS

11:15

This session will provide an overview of other significant federal sources of water quality financing.

- Nonpoint Source and National Estuary Program Grants (Romell Nandi, USEPA)
 - What is eligible?
 - What is being funded?
 - How do they set priorities?
- Other federal water program funding (Tim McProuty, USEPA)
 - Federal RUS/CDBG/EQIP
 - What is eligible?
 - What is being funded?
 - How do they set priorities?

LUNCH	12:00 PM
V. FUNDING DECENTRALIZED WASTEWATER SYSTEMS	1:30
<i>Three-fourths of the U.S. population are served by centralized wastewater treatment systems, but one fourth are served by decentralized systems. This session will consider funding sources that can support decentralized wastewater solutions.</i>	
<ul style="list-style-type: none">• Overview of decentralized wastewater issues and funding challenges (Joyce Hudson, USEPA)• CWSRF policy and overview (Jordan Dorfman, USEPA)• CWSRF linked-deposit programs for onsite systems (Greg Smith, Ohio EPA)	
VI. FUNDING WATERSHED PROTECTION AND NPS POLLUTION CONTROL PROJECTS	2:30
<i>Wastewater treatment is critical to the success of national water quality efforts, but water quality initiatives are increasingly recognizing the importance of activities that mitigate other water quality problems. This session considers funding sources for watershed protection and nonpoint source pollution control projects.</i>	
<ul style="list-style-type: none">• CWSRF policy and overview (Stephanie VonFeck, USEPA)• CWSRF pass-through loan program for farmers (Paul Burns, Minnesota Dept. of Agriculture)• Natural Resources Conservation Service project funding sources and examples (Tom Christensen, NRCS)	
BREAK	3:30
VII. GROUP DISCUSSION (depending on group size/preference)	3:45
<ul style="list-style-type: none">• What are the major barriers to obtaining funding for decentralized systems or watershed protection/NPS pollution control projects?• What can be done to increase the overall effectiveness of existing funding programs?• What are the appropriate roles of the federal government versus the state/local government?• What are the responsibilities of those seeking funding?• What changes should be made to the way programs operate?	
END DAY ONE	5:15

Day Two: March 15, 2002

VIII. EXPLORING HOW STATES CONSIDER ENVIRONMENTAL OUTCOMES AND AFFORDABILITY 9:00 AM

State CWSRF programs direct their resources to high-priority public health and water quality needs. This session discusses how CWSRF programs consider priority issues.

- Overview and CWSRF Perspective (Cleora Scott, USEPA)
 - Overview of priority ranking systems for eligible treatment works
 - Timing of environmental impact information during funding process
 - CWSRF perspective
 - Use of a watershed approach to prioritize point source and nonpoint source projects
 - EPA Funding Framework Policy
- Integrated priority setting in Rhode Island's CWSRF program (Jay Manning, Rhode Island SRF)
- Integrated priority setting in Ohio's CWSRF program (Greg Smith, Ohio EPA)
- Group Discussion: State planning and priority setting challenges and solutions

BREAK 10:45

IX. HOW TO TACKLE ENVIRONMENTAL PERFORMANCE TRACKING 11:00

Performance measures and information systems assure stakeholders (such as the U.S. Congress) that water quality assistance programs use their resources wisely. This session discusses the measurement of environmental performance.

- Development of environmental benefit indicators (Bob Bastian, USEPA)
- How can impact be measured?

LUNCH 12:15 PM

X. ENCOURAGING EFFICIENT WASTEWATER MANAGEMENT 1:45

Efficient management of wastewater treatment systems reduces environmental impacts and reduces costs. This session discusses tools used for efficient management.

- Sustainable systems (Rich Kuhlman, USEPA)
- Reliable decentralized wastewater management
- Watershed-based decision-making
- Session X Group Discussion

XI. DISCUSSION AND CLOSING REMARKS 2:45

This final session will help EPA summarize the findings of this workshop as the Agency prepares a report to Congress.

END WORKSHOP 4:00

APPENDIX C

Public Workshop Summary

Paying for Water Quality Managing Funding Programs to Achieve the Greatest Environmental Benefit

Session I: Introduction

Focus: To provide a discussion of EPA's goals for the two-day workshop.

Speaker: Rich Kuhlman, US EPA

Summary: The purpose of this session was to provide an overview of workshop objectives and to present a breakdown and explanation of the meeting agenda for all participants. The public workshop was described as a forum to discuss how to effectively manage existing federal water quality funding programs. Agenda topics highlighted for further discussion included a history of federal funding, an explanation of future funding needs, a discussion of the CWSRF program, a description of other federal funding programs, water quality challenges beyond centralized wastewater systems, environmental performance tracking, and local actions that work to increase efficient wastewater management.

This session also described the workshop structure. It was stated that adequate time for discussion would follow each individual session, however it was made clear that, as a group, the participants would not fall under the Federal Advisory Committee Act, and therefore a consensus would not be sought. Instead, a compilation of comments made during this public workshop would appear in the Report to Congress. Interested participants were instructed to provide additional input before April 15, 2002, for inclusion in this final report.

Session II: Water Quality Funding Today

Focus: To discuss how water quality protection efforts have been funded historically and how they are funded today. This session also discussed future funding challenges and EPA principles to address those challenges.

Speakers: Jordan Dorfman and Angela Anderson, US EPA

Summary: The purpose of this session was to provide an overview of historical funding sources for water quality projects, the types of water pollution controls funded, and the success of such overarching programs. In addition, this session ended with a focus on the future challenges to funding water quality efforts, specifically those outlined in "The Clean Water and Drinking Water Infrastructure Gap Analysis."

A legislative history of funding for water quality projects provided a background understanding and a framework discuss the changing focus and levels of federal authorizations for water quality funding. As described during this session, federal spending for water quality projects began in the 1950s and continued to increase dramatically through the 1970s. Although federal funding levels for water quality projects increased to very high levels during the 1970s, levels began to decline following the early 1980s.

Federal Clean Water Act funding brought about environmental improvements that included a reduction in the Biochemical Oxygen Demand (BOD) loading from Publicly Operated Treatment Works (POTWs) by twenty-three to forty-five percent nationwide and a statistically significant improvement in dissolved oxygen levels for eight of the eleven major U.S. river basins. It was stated that spending on water quality now exceeds \$25 billion dollars per year.

The second portion of this session focused on the need for the U.S. to increase spending on wastewater infrastructure and nonpoint source projects. “The Clean Water and Drinking Water Infrastructure Gap Analysis,” a recently published report by EPA, illustrates a wastewater funding gap that is the difference between current funding levels and these future funding needs. This report estimates that there is a clean water capital payment gap of \$73 to \$177 billion over the next 20 years. It was highlighted that such a gap in wastewater funding is a direct result of increasing costs, population, federal mandates, levels of treatment, and an historical under-recognition of the future cost of replacement. Principles suggested for closing the infrastructure gap included utilizing the private sector and existing programs, promoting sustainable systems, encouraging cost-based and affordable rates, promoting technology innovation, promoting smart water use, promoting watershed-based decision-making, and promoting reliable onsite systems and wells.

An additional challenge to future funding needs included a discussion of the costs associated with nonpoint source projects to address such issues as hypoxia, pfiisteria, and improper waste management techniques. In addition, the completion of the 2000 Clean Water Needs Survey was described as a means to more accurately quantify and report nonpoint source needs.

Input: 1) Public Comment: The assumptions that I see about funding sources is that most states will have taxpayer based or ratepayer based funding and there will be some injection of federal funds from the federal treasury through the various agencies identified. How about looking at who uses these services and not just looking at the taxpayer or ratepayer as the basis for the funding. We have a lot of funding programs in place, not just because of problems caused by the individual, but by large industrial polluters. Shouldn't polluters contribute funds based on the damage that they're doing?

Panel Response: Historically most of the costs for wastewater treatment and for providing drinking water have really come from the local level, people paying their rates; well over half of the cost in addition to the federal subsidy. On the state level, many states will impose fees on industry. It is sort of built on that “polluter pays” principle. Industries that require some type of permit are paying the cost of that permit, although it's probably short of the full polluter pay concept. It is an interesting point, however I don't think it would work with existing legislation that we have within the Clean Water Act. But, it is something that certainly could be entertained as we work toward the CWA reauthorization, or reauthorization of the SRF program.

2) Public Comment: There is real variability in states over the charges for NPS permits, some charge zero, while some fees are substantial. Many states do not even cover the cost of writing the permit. In 1993, Congress considered fee based legislation, and saw what it would take to charge some tax or fee on top dischargers (looking at the toxicity of the discharge, volume of the discharge, and the overall water usage) and looked at establishing a National Clean Water Trust Fund. There have also been proposals to take settlements from citizen lawsuits and other

things, which now go into the National Treasury, and instead put them into a Clean Water Trust Fund. Senator Robb introduced such a bill last year. There is also talk in Congress, the Maxwell School, Environmental Finance Centers, and others that have taken a look at ways to establish alternate funding sources. Even though it's not currently in either of the bills in Congress, or SRF reauthorization, we ought to think outside the box for funding sources. Otherwise I don't see how we can close that gap.

- 3) Public Comment: One of the ideas we have had some enthusiasm for in the private sector was the privatization of clean water treatment works as mentioned in a proposal issued by the previous President Bush. The problems we had implementing privatization were many, but one of them was—I don't know if anyone is aware of this—but private firms providing wastewater treatment are subject to different sludge disposal regulations because of the definition of publicly owned treatment works in the Clean Water Act. The other problem we had was the difference between public bonds and private bonds and the rules of arbitrage so that if you had some public financing and you issue bonds, you turn it over to the private sector. The third problem is the treatment of wastewater treatment facilities funded by the federal government. You have to pay back the federal share and the state share is on an amortization schedule.

Panel Response: You are right. There are some restrictions in the CWA. When I speak of private sector involvement, there are whole ranges of things short of the private company buying out the facility from the public sector. There could be private companies coming in to assist with the management or operation of the facility. Or, other opportunities some communities are trying.

I don't want to say this is the magic solution that's going to save the whole country. Decisions need to be made on a community-by-community basis. The decision needs to be made by the community. This is not something we're going to force. But rather, what are some of the barriers there and what are some of the ways to lessen the barriers if need be to encourage the private sector involvement? Although we don't want to get into the bills that are present in Congress now, House bill HR 3933 did address some of the private sector activity and arbitrage issues.

- 4) Public Comment: It's my understanding that the Metropolitan Sewerage Agencies handle the issues of the TMDL approach. I am not entirely clear on this approach. But, it seems to me that it makes good sense to start with the decentralized system, as earlier mentioned, and use the TMDL approach for decentralized systems. Could you comment on this?

Panel Response: I am not really an expert on the TMDL program; however, Romell Nandi will cover nonpoint source issues later today.

- 5) Public Comment: How much of the SRF funding goes toward nonpoint source projects?

Panel Response: In the early years of the program, the SRF funding share for nonpoint source projects was low, although in recent years, it's been ramping up toward ten percent. Cumulative it is four percent, but it's going up. This is the number of dollars and not necessarily the number

of projects. When looking at the number of projects, it's much closer to twenty-five percent, cumulative. In the past few years, the percent total nonpoint source projects is closer to thirty and forty percent. Also, nonpoint source projects tend to be much less costly than some of the treatment works projects.

- 6) **Public Comment:** What is the majority of the types of projects most funded, specifically within the nonpoint source program?

Panel Response: That will be addressed later this afternoon through a session specifically on nonpoint source funding through the SRF.

Session III: Overview of the Clean Water State Revolving Fund Program

Focus: To provide an overview of the CWSRF Program, the largest source of water quality financing assistance.

Speaker: Mark Kellett, Northbridge Environmental Management Consultants

Summary: The purpose of this session was to provide an overview of the CWSRF program for workshop participants that needed a up-to-date understanding of the SRF program. Topics discussed included a description of the CWSRF structure, the status of program funding, project eligibilities and priorities, and an explanation of ways in which to determine local program affordability.

Initial background information provided on the CWSRF program included a description of the initial funding shift from direct grants to loans, the shift from federal to state lead in working with communities, and the change in program focus from wastewater treatment to watershed protection.

Details on the structure of the CWSRF included a comparison of the program approach to that of a bank. The CWSRF was described as a type of environmental bank, capitalized by both the federal government and the state government. Sources of funding included the federal capitalization grants, the twenty percent state match, bond issue proceeds from leveraging, repayments, and other fund earnings.

In a brief update on the status of the CWSRF program, it was stated that overall program funds available total 37.7 billion dollars. Of this amount, 18.3 billion dollars, as of June 2001, accounted for the overall federal share and 3.8 billion for total state match. With successful programs operating in all 50 states and Puerto Rico, it was also stated that 10,919 loans as of June 30, 2001 had been made totaling approximately 34.3 billion dollars. A breakdown comparison of community size, by loan amount, was illustrated through various graphs and charts.

Project eligibilities discussed included those of section 212, planning, design, and construction of POTWs, section 319, nonpoint source projects, and section 320, the development and implementation of management plans for the National Estuary Program. A brief discussion of CWSRF priorities included typical considerations of priority lists and a description of integrated ranking systems.

In addition, this session also discussed CWA Title VI assistance options, details such as CWSRF loan interest rates, the idea of "grant equivalence," and examples of state loan repayment terms.

Input: 1) Public Comment: The size of loans to communities may be attributable to the amount of special grant contributions in that year. Senators are trying to get special appropriations for large projects. Is this changing composition of CWSRF loan portfolios impacted by special appropriation earmarked projects that appear in the Federal Budget? Of particular interest, Mississippi has half of their funding in earmarks—the same amount in special grants as in the capitalization grant.

EPA Response: There is no doubt that special earmarks have an impact on the revolving fund. Clearly there is a connection. However, if you look at the history where earmarks have gone in the past, such as in the early years, 1992-1993, there were a few large grants made to major municipalities. Since then, this has changed dramatically. Although earmarks do have an impact on funds, I don't think you see that impact here. While there are still many large communities getting grants, there are also many smaller communities getting grants.

2) Public Comment: Are earmarks coming out of preexisting grant monies or are they additional funds that are put in?

EPA Response: Earmarked funds come from additional monies provided by Congress. The CWSRF program has not been reduced in funding from those earmarks. Congress either pulls other funds out of EPA's budget to put toward earmarks or they use additional funds from other sources outside.

3) Public Comment: Our experience has been with communities of 500 or less in population. These communities are much different than communities with populations between 3,000 and 3,500. In turn, these communities are even less similar to communities greater than 5,000 or 10,000 people. Are SRF statistics available on the number of projects, or percent of funds, for these smaller communities?

EPA Response: We just don't have that information on loans to small communities. States are to provide this type of information on such communities and right now the definition of small systems is 10,000.

4) Public Comment: In HR 3930, the definition of small systems has increased to 20,000.

5) Public Comment: There is more emphasis and a need for the very small communities to upgrade their wastewater treatment systems to meet environmental regulations. We are just concerned that they get their share and have to access funds.

Session IV: The Role of Other Federal Water Quality Funding Programs

Focus: To provide an overview of other significant federal sources of water quality financing.

Speakers: Romell Nandi and Tim McProuty, US EPA

Summary: The purpose of this session was to provide an overview of the EPA Nonpoint Source Grant Program, the National Estuary Program, and to provide a description of other relevant federal funding sources including those of the Rural Utilities Service and the Community Development Block Grant Program.

The discussion on nonpoint source funding began with a description of national river-miles and total lake acres impaired by nonpoint source polluting activities. The top sources of impairment, by percent total river-miles and percent total lake acres, included agriculture, hydromodification, urban runoff, and storm sewers. Total appropriations to the Nonpoint Source Grant Program totaled \$100 million per year between 1995 and 1997, \$105 million in 1998, \$200 million for 1999 and 2000, and \$237.5 million for 2001 and 2002.

This session also discussed the general usage and priority targeting for CWA section 319 funds. Topics covered included the use of funds by the states, consistency of funding priorities with those in the state's Nonpoint Source Management Program plan, and specific EPA conditions on funding, such as the requirement of states to use approximately half of their 319 funds to plan, develop, and implement TMDL allocations. Examples of section 319 projects included Best Management Practices (BMPs), nonpoint source education programs, technical assistance, monitoring, and watershed planning.

Also discussed was the National Estuary Program and associated grant funding. A history of the NEP program provided registrants with details on the program such as the purpose of promoting comprehensive planning, integrating, regional monitoring, and coordinating research for significant national estuaries threatened by pollution, development, and overuse. Further background information described the unique approach for selecting and managing an individual NEP under this grant program.

As presented, FY02 NEP grants totaled approximately \$17 million, equivalent to \$500 thousand for each of the twenty-eight NEPs. In the past, an average of \$300 to \$350 thousand was allotted per program. A discussion of NEP planning and priority setting included a brief mention of the Comprehensive Conservation Management Plans.

Priority problems presented included nutrient overloading, pathogen contamination, toxic chemical pollution, alteration of natural flow regimes, habitat loss and degradation, decline in fish and wildlife populations, and introduced species. Various examples of CWA section 320 funded projects were provided.

The second half of this session was devoted to the exploration of other significant federal funding sources including those of the U.S. Department of Commerce, Department of Housing and Urban Development, Department of the Interior, and the Department of Transportation.

Discussion on alternate funding programs for water quality projects began with an overview of the Catalogue of Federal Domestic Assistance. The catalogue provides information on fifteen types of assistance tools including formula grants, direct payments, guaranteed loans, and technical assistance. The publication, with information on some 1,482 assistance programs through 63 federal agencies, was presented as a valuable resource. When compared with similar assistance in other countries, the federal assistance in the United States is very generous. However, federal resources are dwarfed by national water quality needs.

This session presented many non-EPA water quality funding programs, including the Department of Agriculture's Rural Utilities Service Water and Wastewater Disposal Program, the Department of Commerce's Appalachian Regional Commission, the Department of Housing and Urban Development's Community Block Grant Program, the Department of Interior's Infrastructure Program, the Department of Transportation's 21st Century Program, and the Federal Emergency Management Agency's Disaster Relief Program. The discussion on various alternate programs emphasized the difference between applying for funding through EPA and applying for funding through those programs of other federal agencies. There is a big difference, it was stated, between applying for funding through a program specifically designed for environmental projects where one is competing only against other governmental agencies and applying for funding through a program outside EPA where one is competing not only with other entities, but also with conflicting needs. In addition, it was noted that all of the programs discussed, while promoting environmental and public service goals, are looking more toward economic development. Such programs are much more pollution control oriented, rather than working to limit development to prevent more environmental pollution.

Also noted during this session was the new push for the cooperation between EPA programs and other programs such as the RUS and the CDBG programs. Some types of this cooperation are ongoing, but many are looking to expand these efforts.

Input: 1) Public Comment: Where would you get information on economic development grants, that being a subdivision of the Department of Commerce?

Panel Response: In terms of using the catalog, when you type a listing, EDA for example, into the catalog, you will get a listing of about six to eight programs. In the three to four page write-up on that program, you will find a contact listing at the bottom for that specific program. The alternative is to simply call information and ask for the EDA Headquarters. However, the catalogue serves as a very good starting point.

2) Public Comment: You mentioned people were studying the cooperation between EPA programs and the programs of other agencies. When is that study of such cooperation due for publication and are there other examples of this type of in-depth cooperation between EPA and other agency programs?

Panel Response: In reference to the paper in question, the (Environmental Finance Advisory) Board has already begun, and envisions completing, that report some time this year. Part of what the Board wants is to give some short case study abstracts where such cooperation worked, why it worked, what it was that they did, the best practices, and details of the institutional framework that allowed such a cooperation to happen. Also, the study will include a few anonymous case study abstracts for states where cooperation is not working. These case studies would include information on why cooperation did not work, a description of the contentions, and what institutionally exists in each state that prevents cooperation.

A draft report is expected by the Board's next meeting in August. In their last meeting, in March, it was decided that this project would receive full attention on one of the Board's workgroups.

- 3) **Public Comment:** How much control for RUS does the federal government actually have? And, I am asking specifically in relation to the proposed paper on cooperation. The current system in some states is that if you get an RUS grant, you have to take the loan, even if the loan rate is higher than an SRF loan. That really does not seem to be in the best interest of the community. Is this process going to change?

Panel Response: That requirement is a federal requirement that is mandated out of RUS Headquarters. The states will not have the flexibility on their own to do what they would like in terms of affordability. I imagine this can be rather difficult.

Such a reality also makes it difficult for the RUS to compete at this time. In my opinion, there is currently more flexibility in terms of loan percentages for the SRF. I would suggest talking to the RUS people themselves for an official take on this topic. These are only my impressions when dealing with the program. This is a Department of Agriculture Program and I work for the EPA.

Session V: Funding Decentralized Wastewater Systems

Focus: This session considered funding sources that support decentralized wastewater solutions.

Speakers: Joyce Hudson, US EPA, Jordan Dorfman, US EPA, and Greg Smith, Ohio Environmental Protection Agency

Summary: Ms. Hudson gave an overview of funding available and the challenges surrounding decentralized wastewater systems. Mr. Dorfman then discussed the policy and how CWSRF can fund decentralized wastewater systems. Mr. Smith covered his experience in Ohio with funding decentralized wastewater systems.

The purpose of this session was to demonstrate how decentralized wastewater treatment is important nationally because one quarter of the population is served by these systems and about a third of all new wastewater construction is decentralized. Systems have poor track records and have high pollution potentials from mismanagement. 10-25 percent of decentralized systems fail annually and over 50 percent of these systems are greater than 30 years old and in desperate need of upgrades and repairs. The pollution threat could affect beaches, estuaries, shellfish beds and groundwater. Panel members explained actions are being taken at the local, state and federal level to devise effective management solutions for decentralized systems. Costs are high for communities implementing management strategies. They face program planning, operation and maintenance, and rehabilitation and replacement costs. The EPA drafted a National Management Guidelines document in October 2000 to help communities establish decentralized management programs. There are different levels and types of management for decentralized systems depending on the control a community wants to have. Some communities have implemented utility districts where fees help maintain the management district in the community.

The panel showed how the CWSRF could be used to fund decentralized systems because they are treated as nonpoint sources of pollution. Management programs can be established through the fund, system installation, replacement, upgrades or modifications can also be funded. Thirteen states have used the CWSRF for onsite systems. In Delaware, three percent or six percent loans are given for 20-year periods for onsite improvements.

Washington State has a similar program. Through local entities the public can receive 0-5 percent loans for 5-20 years. More than 3,000 projects have been completed and \$47 million spent on on-site systems in Washington. The obstacle to funding onsite systems is that many state CWSRF programs do not allow funding to private entities. To overcome this problem many states have found solutions that include working with intermediaries such as local governments or local banks.

In Ohio, onsite systems are funded through a linked deposit program with local banks. Ohio EPA works with local agencies to establish loans. Ohio's SRF invests in a reduced interest local bank CD. Banks review and approve loans from borrowers, and the bank lends to the applicant at a rate reduced by the amount of the SRF CD discount. The banks take on the default risk of the loan for the interest they receive. Borrowers prefer this process because they deal with familiar banks and the SRF approves of this program because the administrative burden of loan review happens at the banks.

Input: 1) Public Comment: In the linked deposit program does Ohio provide financing for administration to the technical partner?

Panel Response: No we don't. We try to make sure that the partnership and the requirements that we have with them are as close to their normal course of business as possible. So, they see these loans not being an extra part of their workload—it may increase the workload—but it's not a completely different kind of work. So, they are usually very willing to accommodate it as part of their normal administrative expense.

2) Public Comment: Is there an additional cost to the banks for their participation?

Panel Response: No, the loan is the same loan, as they would have normally. The line where it says 8.25% says 3.25% for the loan recipient. Again, the banks are equipped through their normal fees to recoup all of their administrative expenses without any additional expenses due to involvement from the Ohio SRF program.

3) Public Comment: How do you reflect these programs in the intended use plan?

Panel Response: Ohio puts such programs on the priority list of the IUP on a countywide basis, although not individual projects because they do not know who the end borrower will be. They also put the cost expected for specific county programs on the IUP.

4) Public Comment: Why such a disappointing response in loans?

Panel Response: We [Ohio] need to do our homework. The degree of urgency the county health departments are putting forth about the need for these improvements might not be enough. Outreach might not be there, people will go ahead with improvements through other financing mechanisms.

5) Public Comment: What is the duration of the investment in the loan? Do you deal with large regional and national banks?

Panel Response: Ohio retains the investment in the certificate until the loan is repaid. If it's a large investment, repayments are decreased as payments come in. The program is flexible. Ohio deals with all size banks, as long as they are nationally chartered. We also work with farm credit services that have sufficient assets to qualify, not only chartered national banks. Small national banks and nationwide chains have participated.

- 6) Public Comment: How much influence does Ohio interject into the management with the county health department, because sometimes their own peculiar requirements can diminish the effectiveness of the program?

Panel Response: Local programs are given fair latitude to know what their problems are and how to address them. Ohio is hesitant to step in and say you have to do it this way. This is possibly another reason why the program is not successful in attracting loans.

- 7) Public Comment: How many states use the linked deposit program and what are the barriers for states using this method? How can SRF address NPS and private loans more?

Panel Response: Addressing the lack of NPS funding is why we are here and at this meeting we hope to come up with ideas. The EPA welcomes feedback on what could and should be done. Hopefully many at this workshop can explain what they have done in their states. Every year EPA sees more states jumping on board and funding NPS. We always need pressure on states to understand the issue and understand what needs to be done. We can't force the state to do it, but the pressure often must come from within the states. There are not many states, only three to four doing linked deposit. Some states often have difficulty getting banks on board. Many states are also practicing linked deposit for other programs, such as for housing, not just for water quality.

- 8) Public Comment: Farmers are not likely to take loans when grants are available. Farmers are already financially hit and not likely to do any extras.
- 9) Public Comment: EPA cannot make states do NPS funding. Local community groups and nonprofits that go to the states are best at getting the states to fund NPS projects. The EPA Onsite program promotes communities talking to states. Although building constituencies is important, it is still the states that ultimately manage their programs with federal dollars to do so.

- 10) Public Comment: Maryland was listed as a linked deposit state, what are they doing?

EPA Response: Their new program is modeled from Ohio's and has only made a couple of loans. Possibly two loans for about \$5000 are all that has been done.

Session VI: Funding Watershed Protection and NPS Pollution Control

Focus: This session considered funding sources for watershed protection and nonpoint source pollution control projects.

Speakers: Jim Scott, Northbridge Environmental, Paul Burns, Minnesota Department of Agriculture, and Tom Christensen, USDA NRCS

Summary: Mr. Scott provided an overview of nonpoint source pollution control projects the EPA supports. Mr. Burns then explained how Minnesota uses its unique approach to nonpoint source funding and explained their best management practice loan program. Mr. Christensen helped the audience understand the USDA's water quality funding programs.

While wastewater treatment is crucial to water quality management, nonpoint source pollution also needs to be addressed to consider the entire picture of water quality needs. There are a variety of nonpoint source projects supported by the CWSRF and other water quality funding programs. These include stormwater BMPs, agriculture BMPs, riparian protection, wetland protection, UST removal, brownfield remediation, and even dam removal. Since 1995 there has been a steep increase in nonpoint source spending (\$1.3 billion since 1995). Thirty states have used CWSRF funding for nonpoint source activities. To reach out to new borrowers states have established innovative partnerships with other state agencies, county loan programs, NRCS offices, and local banks to offer loans. Examples are Ohio's CWSRF linked deposit program, Minnesota Department of Agriculture's agricultural BMP loan program and Maine State Housing Authority's septic loan program. CWSRF programs have also encouraged partnerships with point and nonpoint source projects, such as Ohio's Water Resource Restoration Sponsor Program.

Minnesota's agricultural BMP loan program started in 1995 and supplies low-interest secured loans through local governments and lenders to farmers for the implementation of comprehensive local water plans. The comprehensive water plan identifies the water resources, describes any problems, establishes priorities, and develops an action plan. The state allocates funds to counties and distributes funds to local lenders. Counties implement the local water plan, identify and solicit projects, and hold the accounts for use within the county. The lenders then evaluate the financial feasibility and risk of the loans, request the funds from the state and collect loan repayments from borrowers. The local lender guarantees the loan repayment to the state SRF. To date there have been 4,500 projects and \$51 million in loans.

The USDA has many loans and grant programs for water quality protection and improvement projects. Their primary conservation programs include the Conservation Technical Assistance, Environmental Quality Incentives Program (EQIP), Wetlands Reserve Program, Conservation Reserve Program, Conservation Reserve Enhancement Program, and the Small Watershed Program. EQIP for example, provides farmers and ranchers with technical, financial and educational assistance to help them comply with environmental regulations and natural resource concerns. Approximately \$200 million per year is spent on this program. Many USDA projects are coupled with EPA funding programs such as 319 grants. The Farm Bill now in Congress will increase funding to natural resource conservation programs.

Input: 1) Public Comment: Who provides the insurance policies the NRCS talked about?

Panel Response: There is a group out of South Carolina called the Agriculture Conservation Innovation Center that is involved in some of those piloting programs and also works with the

Risk Management Agency in USDA. Two aspects of the program are to look at solutions to reduce the commercial application of nitrogen in a cropping situation and the other is implement what they call “manure crediting.” Manure crediting, in essence, describes the farming practice of applying manure to cropland. When manure is applied, a farmer, in effect, reduces his/her need for commercial fertilizers due to the inherent nutrient content in manure. The funding behind this program was initially a grant; however, as the project has grown, and incorporates collaboration with the Risk Management Agency, there may also be some USDA funding behind it as well.

- 2) Public Comment: Have you been able to determine measurable water quality improvement as a result of the BMPs in Minnesota?

Panel Response: Not as we would like, only relying on ambient and watershed based monitoring systems in place. One of the needs would be a better cause and affect system to demonstrate and prove, that an investment of \$50K resulted in X reduction in chloroform or nitrates or phosphorous in a receiving water body. Minnesota does have activity measures, like how many acres were affected by the conservation tillage equipment they funded. We are able to build estimates on numbers, but not from direct monitoring results with X improvements. Even though water quality improvements are seen, the state cannot directly relate projects funded because of many variables.

- 3) Public Comment: Minnesota mentioned that good programs are run at the state level? How do you do this? What about your priority system ranking? How do you keep the reporting down?

Panel Response: The Minnesota Department of Agriculture helped to update the state 319 plan. The group that reviews the county applications to the program is a subcommittee of the state 319 program. Counties apply each year indicating what projects they would fund under the competitive application process. Priority and funding levels are driven by how much a county’s plan would improve water quality. Also must indicate how they will spend their revolving dollars and that must be related to the local water plan. Loans are not approved unless the applicant is utilizing approved practices, and by the time projects come to the Department their credit rating has already been approved.

- 4) Public Comment: In all programs do you have long-term management plans? Training programs?

Panel Response: The short answer is no. I’ve seen this as a concern for cost share programs. Low-interest loans must be paid back so there are built in incentives to do the projects and maintain them. County inspection programs for septic systems are in place, but not frequently utilized, except perhaps in instances of high quality lakeshore areas, such as those monitored additionally by the self-inspection programs of lakeshore associations.

- 5) Public Comment: Does the USDA look at models for water quality? What kinds are used?

Panel Response: Modeling is important because monitoring everything is impossible. TMDL/

agricultural nonpoint source models are used and developed by the Agricultural Research Service. The Cooperative State Research Extension Education Service started a 5-year project looking at water quality tools and models. Broad range of land grant universities and other scientists are also considering tools available and how they can be improved and more properly used in certain situations.

- 6) Public Comment: Whose job is it to determine the combination of programs to use? NRCS? Local? State?

Panel Response: NRCS tries to encourage all levels of participation. Local stormwater conservation districts have the lead of choosing projects. NRCS district conservationists also have knowledge of all the available projects. More often than not, it is a combination of people and a process that identifies the programs that match up to achieve the greatest result. It varies by state, but you need the combination to be most effective.

Session VII: Discussion

Focus: This session allowed the audience to voice their opinions on barriers to obtaining funding and problems they face. Discussion also focused on what can be done to increase the overall effectiveness of existing programs.

- Input: 1) Public Comment: In the DC area, land protection is important and the SRF has been used for land protection in the past. There is a big potential here. There is a need for more recognition and the SRF needs to be pushed on more land conservation.
- 2) Public Comment: What will the federal government role be in incentivising SRFs? Speaking as a land conservationist, we know there has \$20 billion new dollars created at the local level for land conservation over the last 5 years. There has been some interesting work with mixing up the land people with the water people and trying to find out, at the watershed level, how to make land conservation work as an NPS tool. There are many innovations present at the local level today, such as creating incentives to link the watershed and land conservation programs and fostering means to better understand how to measure the results and impacts of programs. How much money is being spent on looking at the actual results of programs? What are the barriers to better modeling and monitoring? Demonstration projects need to be highlighted.

A successful incentive program is New Jersey's Green Acres program. At the state level, this traditional land conservation program has been linked with their SRF. When counties and cities come for loans for land conservation, the application asks if there is a water quality impact. If so, they may be eligible for an SRF loan. This is a more attractive package for loan applicants. The Brownfield program is also a good program that highlights local level work. Perhaps the SRF can model their program from the Brownfield program.

- 3) Public Comment: EPA needs to do a better job of tracking where the dollars are going. States have funding, but the public needs to know more about where the funding is going. It is important for the public to understand funding down to project level and in different categories. This should not be that expensive of an endeavor with the technology available today.

Moderator Comment: EPA has realized the need to track more NPS funding and projects. The NIMS program is currently working on tracking that better and EPA has realized this is an issue.

- 4) Public Comment: There are barriers to decentralized systems in small communities. Alternative onsite systems are not readily accepted at the local county levels. There needs to be some type of national effort to certify new onsite technologies—aerobic etc. Alternatives are needed that work and are accepted. There is also a need for technical assistance to help motivate decentralized management entities. Counties don't want to do it, some rural electric utilities might do it, but in some cases there may be a need to create an entirely new entity. In the Midwest, there are not the same incentives for wastewater systems to develop, as have rural water systems. There are barriers because legal entities, and not homeowners, apply for funding in many cases. If counties or townships do not do it, then homeowners need to group together. Higher levels of funding and public awareness need to occur for decentralized systems to progress.
- 5) Public Comment: Is one of the barriers for NPS projects a capacity issue at the State level in terms of staff time for the SRF program? Could there be an incentive for additional dollars for the administration of the SRF, if it is a capacity issue? What makes a difference at a watershed scale? This might be a research question and might not be an issue for the SRF.

State Response: The Wisconsin Department of Natural Resources developed an administrative funding for water quality model. The primary mechanisms we use for funding administrative expenses associated with water quality programs include section 106 grants, 104(b) grants, some SRF funds, and some 319 funds. According to our model, there was a \$700 to 900 million dollar annual gap in funds available for the state administration of water quality programs. Also, an expenditure survey found that less than 30 percent of all money that supports the Clean Water program is federal money. I want to make a point that there is a lot of federal money available for these programs, but there should also be federal implementation of these programs.

Other sources of funding include general-purpose revenues, general fees money, and bonding. There is a very large problem with what states can do to continue water quality efforts. The SRF is a complicated program and requires state and federal partnership to do all the work. It is difficult for states to administer this program and it is not getting any easier. Also, the Needs Survey shouldn't be the only determinate for state allocation.

- 6) Public Comment: If you look at national numbers from the gap analysis and from earlier presentations, they said 90 percent of the remaining pollution is from NPS and only 4 to 10 percent of the SRF funding addresses NPS. It appears substantially cheaper nationally to address the NPS pollution problem compared to point source when compared as a percentage. The Gap analysis should show much less funding required when addressing the entire NPS problem over 20 years, than to maintain the central system infrastructure. So when you combine those facts you see the country is misallocating its clean water funding. This is a glaring problem the federal government needs to pay attention to. States have the flexibility, but also know they need to be accountable. The nation is now at a point where all the money is thrown

to a small fraction of the problem, that is the most expensive by far to maintain. It is up to the states to be accountable for their use of the federal resources and to redirect those in a more efficient way. States should be accountable for redirecting money to NPS projects. We should allow states to use funds for grants to NPS projects so incentives exist for communities, farmers, and homeowners. We should not use a traditional SRF loan, but have an SRF loan with some principal forgiveness. This will provide more administrative funds for states to administer their programs. At this time it is a flagrant misallocation of our country's resources that the states are continuing to put all the money into the central system grid and not diverting to those projects that clean up the water bodies of this country at a substantially lower cost than the central system approaches. Without using mandates, the federal government could induce incentives in the financial system.

- 7) Public Comment: Earlier in the session I talked about the TMDL approach. It seems to me that there are different approaches that may work better for the different areas of nonpoint source pollution. The one we do most of our work in is wastewater treatment. If the TMDL approach is not in complete favor for agricultural or metropolitan interests, perhaps it is a very good basis for encouraging large-scale use of pollution control equipment in unsewered areas. The incentive behind that could be the state revolving loan funds that are proportioned for decentralized systems. If the states do not require a secondary level of treatment or higher where necessary for such systems, then they wouldn't get their proportion of the state revolving loan funds for nonpoint source pollution, in the same way they would be in violation of their highway funds if they didn't comply with certain requirements of the federal government. In terms of financing those, it wouldn't necessarily have to be through the State Revolving Fund, which is of course is a very good regenerative fund, in many cases the marketplace would adsorb the upgrade of commercial and residential applications for both new construction and resale of the property. And, it would be simple, whatever the code is at the time, the marketplace would adsorb the cost under new construction to comply with that code. And of course on a resale, the marketplace would absorb that cost as well. An inspection would be done at the time of sale and if the property didn't meet whatever code was in place at that time, then they would have to be brought up to code before the closing of that exchange and the sale could take place. And again in the private marketplace, the transaction of the buy-sell would absorb that cost and then the balance of those funds could be used to upgrade the impoverished communities where you have a different approach.
- 8) Public Comment: The vast majority of our pollution comes from nonpoint sources, yet the vast majority of the money goes to point sources. My suggestion is that anyone with any sort of power influence should talk to the cities and the communities and let those small and medium municipalities know this as well. Because sometimes they will resist as they think it's their money for a wastewater treatment plant. They don't realize because TMDLs can only control the point sources, it is much better for them to allow some of this money to go to nonpoint sources to eliminate some of these problems. Educate the communities in your states that they do want to fund nonpoint source projects.

Also, I'm not sure that giving for-profit businesses principal forgiveness and more grants is the best use of the available SRF program funds. Because money is a finite resource, and the reason

we can even have a lot of these discussions, is that it's a revolving loan fund and the money comes back. We have to be careful when we talk about principal forgiveness, because it decreases the amount that is available in the future for this type of work.

- 9) Public Comment: The Needs Survey is mostly oriented toward publicly owned treatment works. Most of those needs are for traditional wastewater needs. The point is it grossly underestimates the needs. Many older facilities need reconstruction, and we don't have documentation on those future needs now. Just to maintain the structure we have now is very expensive. One other point is that this is a state program, and the states have their own unique strategies. It is not EPA setting directions and policies, but every state and individuals are doing this. A successful program will start from the bottom up to address any nonpoint source, or any type of water quality problem.
- 10) Public Comment: In managing Minnesota's agriculture BMP loan program, I have seriously tried to avoid competing with municipal wastewater treatment needs in terms of the allocation of SRF dollars. I know the minute I try to compete, who is going to win. Fortunately our state has been granted with sufficient funding amounts. But, we would have a difficult time if we tried to compete for those dollars. Guidance will have to come from EPA, as states are not likely to suggest their individual communities pay more. Also, if we are going to try to address more nonpoint source needs through the SRF program, there are going to have to be more dollars put into the system.
- 11) Public Comment: We need more funding into the nonpoint source and the nonstructural controls. There are barriers at every level not allowing us to allocate resources in a way many support. We do need incentives at every level. I feel that it's not a question of blame, one agency over another, but of barriers. We should provide financial incentives to the entities that receive the money, as well as ways to generate public support.
- 12) Public Comment: We would love to get into nonpoint source pollution problems, but we don't have people wanting nonpoint source loans. As long as nonpoint source is a voluntary program, and there is no enforcement for it, we cannot get people to come in for a loan as long as there are grants out there available to complete their projects. We cannot compete with available grant programs, as long as the nonpoint source program is still voluntary.
- 13) Public Comment: Say a small community does not have a sewer system and they also had a water quality problem. Historically that community could go to the EPA and get funding to build a quite expensive, but small, central sewer system. However, could not get money for onsite systems or small cluster upgrades. This must be fixed. One of the House Bills now does in fact provide an incentive for small communities to do an alternate approach.

There is also a growing debate about CSOs and underground storage tunnels in comparison with distributed storm water retention and low impact development kinds of techniques. If communities can get funded for underground storage tunnels, but not receive funding for a whole array of distributed series of storm water retention through the SRF, then again the financing system is creating a bias for one type of technology over another, irregardless of how

expensive and/or inappropriate that type of technology might be. I feel it is incumbent on the state to fix whatever barriers there are to correct for the bias over different types of technology solutions available out there. All loans should strive toward neutral funding for all types of project solutions.

Panel Response: I am struck by the fact that there are barriers at every level. There are barriers at the federal level, the state level, and the local level. Some local governments don't want septic tanks. And, on the other hand, there are governments that don't want centralized systems and growth. They haven't, but should, figure out what barriers are present and how they might be able to successfully impact these barriers. Communities should see that they can and are able to choose between centralized and decentralized systems. I don't have an answer, but am having a reaction to the barriers. Hopefully there will be some new ideas out there to address these issues.

- 14) Public Comment: From a program development vantage point, maybe you don't want to address all the barriers but to come at this from a different angle. Instead of forcing communities to do what they don't want to do, maybe it should be more a matter of supporting those people already out there solving the barrier problem and using tools to solve the nonpoint source pollution problems. Nonpoint solutions are very complicated and not easy to measure. Let's support those out there with an understanding of these potential solutions.

We should also support partnerships with nonprofit organizations. They are less risk adverse, have the opportunity for more innovative and creative solutions, and can leverage dollars very well.

- 15) Public Comment: I agree that there are many groups out there working to break down these barriers. Also, in response to a previous point, many communities in many states would rather take grant money, than taking a low interest loan.

I would also like to make a point about the specific definitions applied to a decentralized system. This is when you collect the water and send it somewhere else. This is not the same as a septic tank on an individual property. Cluster systems are a group of homes on any system, both centralized and decentralized.

- 16) Public Comment: One suggestion is to require that 319 and CWSRF work together. Combine grants and loans in one application. The community, locality, or conservation district would fill out one application and on this application is one question that asks "Are you willing to take a loan?" Both programs work together to determine how to fund the projects. They take into consideration the amount the community can afford to pay. That amount then will become a loan, and the remainder of need is given as a grant. (This cooperative program is already in place for Washington State in combination with The Centennial Program.)

- 17) Public Comment: I know that partnerships and cooperation are beneficial and necessary, but for small communities it is much simpler and less stressful if they can go to one agency for funding. If everyone is going everywhere for the funding and leveraging, responsibility is on the

backs of the same communities that are having the problems. I would suggest putting the money in one pot. Let the communities decide what they need in terms of funding.

- 18) **Public Comment:** We seem to agree nonpoint source pollution is a contributing factor and there are many obstacles in our quest to meet water quality standards. There may be a danger in saying that water quality financing is the sole way to address this situation. I think that financing may be a part of the solution, but it is one of many. There is a large difference between nonpoint solutions to problems and point source solutions to problems. I think we should be very careful as to what we are trying to accomplish and how we should get to that point.

Session VIII: Exploring how States Consider Environmental Outcomes and Affordability

Focus: This session discussed how CWSRF programs consider priority issues.

Speakers: Cleora Scott, US EPA, Jay Manning, Rhode Island Department of Environmental Management, and Greg Smith, Ohio Environmental Protection Agency

Summary: Ms. Scott first discussed the EPA's role in priority setting and environmental review and highlighted a few states with proven successes. Mr. Manning and Mr. Smith followed with their specific examples of how their states are running priority systems.

The panel discussed how priority lists are typically considered in development of CWSRF Intended Use Plans. POTW projects must be ranked on a current CWSRF priority list to be eligible for funding. Each state develops and implements their own ranking process and consider factors such as use of the water resource, threat, type of project, effectiveness, enforcement activities, population and affordability. All POTW projects must also have an environmental review and consider impact, present and future conditions, land use considerations, and coordination with other public works projects. Some states are moving toward a more comprehensive approach to making their priority lists, which include nonpoint source activities. Integrated planning and priority setting helps states identify their water quality priorities and select projects that will best address these problems.

Rhode Island's example showed the point ranking for different criteria and how their state determines the final ranking. Some of the considerations and point values came from existing conditions, proposed benefits, water quality improvement, intergovernmental needs, and readiness to proceed.

Ohio has a similar integrated priority setting system that was originally developed from ideas and principles presented in the EPA Funding Framework Document. In addition, Ohio later received grant funding through EPA under section 104(b)(3). Under this integrated priority setting system, projects are evaluated on their effects to human use and aquatic life uses of the water resource. The first priority considers human health. The second priority is the protection of surface and ground water resources.

Input: 1) **Public Comment:** Were there political battles in Rhode Island getting the priority system established? Did you open it to the community for comments?

Panel Response: The ranking system is an in-house project. We had a workshop and public hearing to get the public involved. We also put ads in the local paper.

- 2) Public Comment: How was the ranking system determined in-house? How did you determine where different projects would fall?

Panel Response: The draft was given to a 319 person and an estuary person. We had five hypothetical projects to run through the system. If point allocations led to a point source bias, the system was modified to eliminate the bias.

- 3) Public Comment: Proper allocation of resources from an economic standpoint is not addressed with these priority systems. For example, suppose you have a point source project with a ranking of twenty, and ten nonpoint source projects with a ranking of three each. Suppose also the point source project with the ranking of twenty costs \$20 million, and each nonpoint project costs \$500,000 each. Economists would combine all points and dollars on each side. For \$5 million dollars you could achieve a total of thirty points, or for \$20 million dollars you could achieve a total of twenty points, depending on how you allocate the funds. How much water quality improvements can be achieved for a certain amount of money? How many projects can a state do? If you add up the all the smaller projects, you would put your money into all the smaller projects instead of the expensive point source projects. States should consider this. Why are 96 percent of dollars spent on point source projects with minor impacts when we can shift the money and spend all the money next year on nonpoint source projects to dramatically improve water quality across the nation? The problem with current priority settings is they do not consider relative cost effectiveness and benefits of the projects undertaken. At the end of point source scoring, if the nonpoint source projects add up to a higher score than the point source projects, the state should put all the funds into the nonpoint source projects.

Panel Response: Ignoring point sources and not addressing them would mask the nonpoint source pollution additions. Readiness to proceed also comes into play. If the project is ready to go, why sit on the money?

- 4) Public Comment Continued: Some smaller projects get lower points, but you're not taking into consideration the total benefit. Economists would not see the cost effectiveness of the list. Relative cost of doing projects is not considered. There are flaws in the priority system.

Panel Response: Ohio agrees in part, and has considered, relative cost effectiveness. Another point is point source projects require longer assistance compared to nonpoint source projects, five years, and not more than ten. If you put one dollar into a nonpoint project, the benefit will come back in half, to a quarter, of the time for the completion of a point source project. The point source project dollar will come back in twenty years. Nonpoint source projects are treated more neutrally in Ohio and the degree of improvement is considered and weighed. Whichever projects reach the federally established attainment goals, whether point or nonpoint, should be viewed as better projects. It depends on what is trying to be accomplished. Attainment is the goal and not necessarily the volume or magnitude of the water quality improvements. There seems to be the impression that point source projects are holding back nonpoint source

projects. This is not the case in Ohio and many states. There are not enough nonpoint source projects applying for loans. Establishing nonpoint implementation institutions will help see that more projects are going to states. In 12 to 14 years, not one applicant in Ohio has ever been turned down for a nonpoint source project.

- 5) Public Comment: If we have nonpoint projects that are interested in receiving funding, they can come in and get the funding. The problem is not one of priority, but it is a systematic problem. SRF programs are designed to fund point source projects. A better vehicle to fund nonpoint source pollution, already established, is section 319. Section 319 has \$220 million allocated to it on a nationwide basis and the SRF program has \$1.35 billion allocated to it. The better program for nonpoint source is section 319 and we should not structure an SRF program specifically to fund more nonpoint source projects.

An additional point I would like to make is that much of what we try to do when running our leveraged loan program is to also do credit worthiness. Many of the larger municipalities are more credit worthy than other types of institutions and farmers. This is not a situation with the SRF where we can necessarily exclude a group of individuals to have a better SRF. My suggestion is to have a bigger tent, and get those municipalities into the process doing their point source work, which is important to maintain water quality, not necessarily to improve in some cases, but to keep it where it is right now. We need these larger municipalities to provide the credit history and the credits necessary to make the program cost efficient and cost effective.

EPA Response: I have two thoughts. One, Ohio does not turn communities away or nonpoint source projects away. It is not that they have money leftover, not being used. When Ohio does their business plan, they decide whether or not they need to go out to the market and leverage more funds. They do this based on the number of applicants they see coming in for loans. So, Ohio, in essence, has an unlimited supply of funds. They can always go to the market and sell more bonds.

The second point I would like to make is that not all pollution is the same. Different types of pollution may affect different types of problems a state may be having. Just to use the Ohio example, they identify human health and aquatic problems. States must make a decision with their funds as to how they will prioritize. Such decisions impact the types of projects that rise up to the top of the priority list. It is not easy to simply say three smaller nonpoint source projects are going to equal the environmental benefits of a much larger point source project. The two types may be creating too entirely different types of pollution problems. However, it also can work in reverse as to say that, yes, three smaller nonpoint source projects may give the same type of pollution solution. However, it may not. This is part of the decision that the state makes when they establish criteria and rank priorities.

- 6) Public Comment: How are priority lists coordinated with enforcement actions (e.g., CSOs and enforcement decrees)?

Panel Response: It is difficult because SRF tries to fund and help enforcement areas. They are

ranked just like any other project and what the effect of project will be is the main consideration for funding.

- 7) Public Comment: When is the IUP created in Rhode Island and when are the projects prioritized? When is readiness to proceed taken into consideration?

Panel Response: One month after notification for project applications, the public notice and the whole process is one year long. We do not turn away any projects, except major treatment plant expansions and upgrades expected this year. The relative ranking is now becoming more important.

- 8) Public Comment: The SRF and section 319 are seen as separate problems in Congress. SRF funds should be used for infrastructure and more money should be put into section 319 for nonpoint source projects. American Rivers is working on getting more dollars into the new House and Senate bills for nonpoint source funding. Phase II stormwater regulations are now coming into play. Are you seeing more of a demand for this type of funding?

Panel Response: It is a disservice if we see this problem as a point source versus a nonpoint source problem. These are not separate problems. Funding should not be at the expense of the other. Nonpoint source project funding will take place if projects apply. Melding the section 319 and the SRF programs is an interesting concept also. Stormwater regulations have not yet caused more awareness about the affects of nonpoint sources as they move into Phase II. This is a sleeper issue and I not aware of what's going to be brought about and why it is important. Stormwater can be perceived as another utility that you need a pipe for. The regulatory initiative will push stormwater.

- 9) Public Comment: Minnesota has two times the demand for funds available. Local controversies and issues have driven the awareness of nonpoint source funding. Other municipalities will see an increased demand when localized problems arise. Section 319 is not the only solution for nonpoint problems. A mixture of section 319, the SRF, and other programs can be used to address nonpoint problems. Competition with municipal point source programs and nonpoint source programs would be destructive. Farmers and citizens versus the municipality would be a bad battle and could be reflected in the water bills.

- 10) Public Comment: What is the role of other federal funding programs besides section 319 and the SRF? What is their magnitude of impact (e.g., NRCS)? What is their role in state programs?

- 11) Public Comment: The mixture of programs work well together because they work at the local level and let landowners know which program or combination of programs work the best for them. Combined applications are available in Minnesota. State grant programs, such as the Wastewater Infrastructure Fund, for lower income municipalities supplement the SRF to cover additional costs so water bills are not excessive.

- 12) Public Comment: This is Deja vu of 60s and 70s with construction grants. The Public Health Department then had the same arguments. There are not enough dollars and the large sewer

construction projects get the most funding dollars. First centralized systems and now decentralized systems are supported. We need to have education as to what is best. We need ways to deal with the systems in place today. States are funding nonpoint projects is encouraging, and education is happening. The big guys are not letting the little guys have the funds. Engineers and contractors are not going to deal with the smaller programs because there is no money in them. Public health engineers deal with the smaller issues. State agencies today will have to take the role and responsibility of dealing with nonpoint source problems.

Session IX: How to Tackle Environmental Performance Tracking

Focus: This session discussed the measurement of environmental performance.

Speakers: Bob Bastian, US EPA and Mary Matella, Tetra Tech

Summary: The Clean Water Needs Survey (CWNS) database is one environmental performance-tracking tool available to the EPA. CWNS database allows stakeholders to consider the overall conditions and stresses affecting a watershed not just the condition of an individual water body or discharger. The database can be used for planning and priority setting, TMDL development, modeling, environmental indicator development and watershed-based needs accounting. CWNS includes data on nonpoint sources, stormwater and wastewater data. CWNS is attached to a GIS program, which allows exact pinpointing of potential pollution sources, and allows more exact watershed-based analysis of problems. CWNS information can be analyzed in combination with hydrography, soil and water quality data, socioeconomic and infrastructure data, land use patterns and transportation networks.

CWNS data provides information on total needs in many different ways. These include by state or watershed, coastal versus inland needs, watersheds with the greatest needs and needs per mile/acre of impaired river. With the use of GIS these needs can be mapped and displayed for use by managers and stakeholders. CWNS has the capability to provide technical data such as population served by a facility, flow capacities at treatment plants, effluent data and concentration and BMP uses in the area. The information can help managers with TMDL development, water quality modeling, and planning and priority setting. Past data can be compared with current data to show improvements or changes in water quality.

Input: 1) Public Comment: What is the quality of the water data like? What water quality data do you accept and reject?

Panel Response: The water quality data can be proven and measured. The cost estimates float around. Integrating cost numbers and water quality data is like doing art and science at the same time. Historical data that goes into STORET is used.

2) Public Comment: Eliminating some sanitary sewers in some areas would cause problems knowing what the baseline would be. What is the cost that is currently there? What loading would be reduced? What loading is there currently that would need to be reduced?

Panel Response: Broader data from open and close shellfish beds and recreational beach closures. How did we use these resources with historical events? If you could control raw

releases that end up closing beaches, the communities that have experienced these closures can give you a very distinct economic effect. Rural affects harder with only water quality data and mixed problems. Point sources are a generic lumping of point and nonpoint sources.

- 3) Public Comment: When setting economic priorities how does contingent valuation factor in and non-quantifiable issues taken into consideration?

Panel Response: Those assumptions couldn't make it through a decision making process, but at the community level this is possible when decision making on where to spend funds. Models that show watersheds compared five years later can show results.

- 4) Public Comment: Reductions from nonpoint sources are hard to determine, but EPA is working on this. They are trying to work with trading systems for phosphorous in the northwest.

Panel Response: POTWs are also having problems with determining reduction levels depending on such conditions as flow, weather, and drought. The Needs Survey normalizes this data and makes it easier to determine reductions.

- 5) Public Comment: Unanticipated consequences include the increased participation with local agencies, all working on the same goal.

- 6) Public Comment: The data is good for quantifying current loads to impaired water bodies, but what about the use of this data for prevention strategies such as land management and acquisition. Is the only option modeling?

Panel Response: In most cases, modeling is best to see outcomes and predict what you can achieve. The most interesting part of this analysis was looking back to see what you get after the fact and what you can put a quantity to.

The most interesting data was seen with secondary treatment. Over thirty years, the secondary treatment volume stayed the same with more advanced treatment and less raw sewage. The population served by treatment plants doubled, however the mass load decreased by 2/3. They still have a viable fishing industry. Toxic loads are still a problem, but in five to ten years this may also be solved. Removal efficiencies must continue to increase. Broad economic benefits on a national level are very hard to determine, but on an individual project level, improvements can be seen.

Session X: Encouraging Efficient Wastewater Management
Focus: This session discussed tools used for efficient management.
Speaker: Angela Anderson, US EPA

Summary: EPA discussed how efficient wastewater management started at the local level and at the local level EPA has identified some key principals to reduce the infrastructure gap. The EPA's suggested promotion of sustainable systems, reliable decentralized wastewater management, watershed-based decision-making and technology innovation. The EPA stated that sustainable wastewater systems involve managing the technical and financial aspects of the system. This included cost-based and affordable rates for customers.

The EPA also suggested consolidation and restructuring and using asset management and environmental management systems (EMS) in the wastewater industry for better management. Consolidation and restructuring would take advantage of economies of scale and public/private partnerships to make the industry more profitable and competitive. Asset management and EMS provide structure to wastewater managers and provide a better inventory of assets and their condition, rehabilitation costs and replacement needs, reduction of risk of noncompliance and improve the overall operational control of the plant. The EPA has been working with organizations to promote EMS with their EMS Framework Project, making available to utility managers various management programs and techniques that are available today.

EPA recognizes well managed decentralized wastewater systems can be a cost-effective and long- term option for wastewater treatment. Reliability and management problems are the main concerns for smaller systems.

Session XI: Discussion
Focus: This final session helped EPA summarize the findings of this workshop and will help the Agency prepare a report to Congress.

Input: 1) **Public Comment:** Funding has been available for large-scale treatment plants with the SRF. They correct water quality problems. However, they also induce growth and stormwater impacts are so great that the water quality problems are worse than before. Stormwater pollution should be addressed in concurrence with, or before, treatment plant pollution.

Air depositions from treatment plants that remove nitrate from the water are causing problems in Florida. Treatment plans use so much energy to remove nitrates and create the same amount in exhaust gasses that rain back out into the water. There is zero gain. The environmental review process might be inadequate. The New York Times has been covering water supply and demand issues with the growth around New York City. When sewers are built the population follows.

2) **Public Comment:** Communities in Rhode Island have comprehensive plans for growth and development. Facility plans sometimes have problems and they address the issue of mitigating growth with facility construction. Secondary growth is addressed in Rhode Island. Environmental review would not help priority determinations, it is more important to the final approval of funding and planning.

- 3) Public Comment: Additional resources for GIS and data systems are very important. New technology should be used and funding should be spent in this area. Nationally an integrated database with air, water and other media should be put together. In Wisconsin a permit system has been established to keep the backlog down and manage the permitting system. Good data decisions are important.
- 4) Public Comment: All cities have areas that would like to be annexed on the city sewer. Eventually with growth, these areas need to be added on, and other ratepayers will feel the costs of expansion. Big pipe operations are not always the answer; sometimes, small rehabilitation projects need to be done before there is a bigger problem. The most efficient way to spend the money needs to be looked at and the most environmentally sound option explored.
- 5) Public Comment: We need to use the programs in place and change those. Principal forgiveness in the new bill is very important. Farmers run nonprofit businesses and conduct conservation practices such as no till and stream restoration for conservational purposes only. The cost to the farmer is on average 8% more to do so.
- 6) Public Comment: Over long term farm conservation practices can make farms more money. However, the short-term expenses are great.
- 7) Public Comment: Barriers can be solved with new money infused into the system. Administrators, communities, and states need more funding. Like the TEA21 regulations, a little money goes a long way. EPA could look at these transportation bills for improvements to water quality programs.