

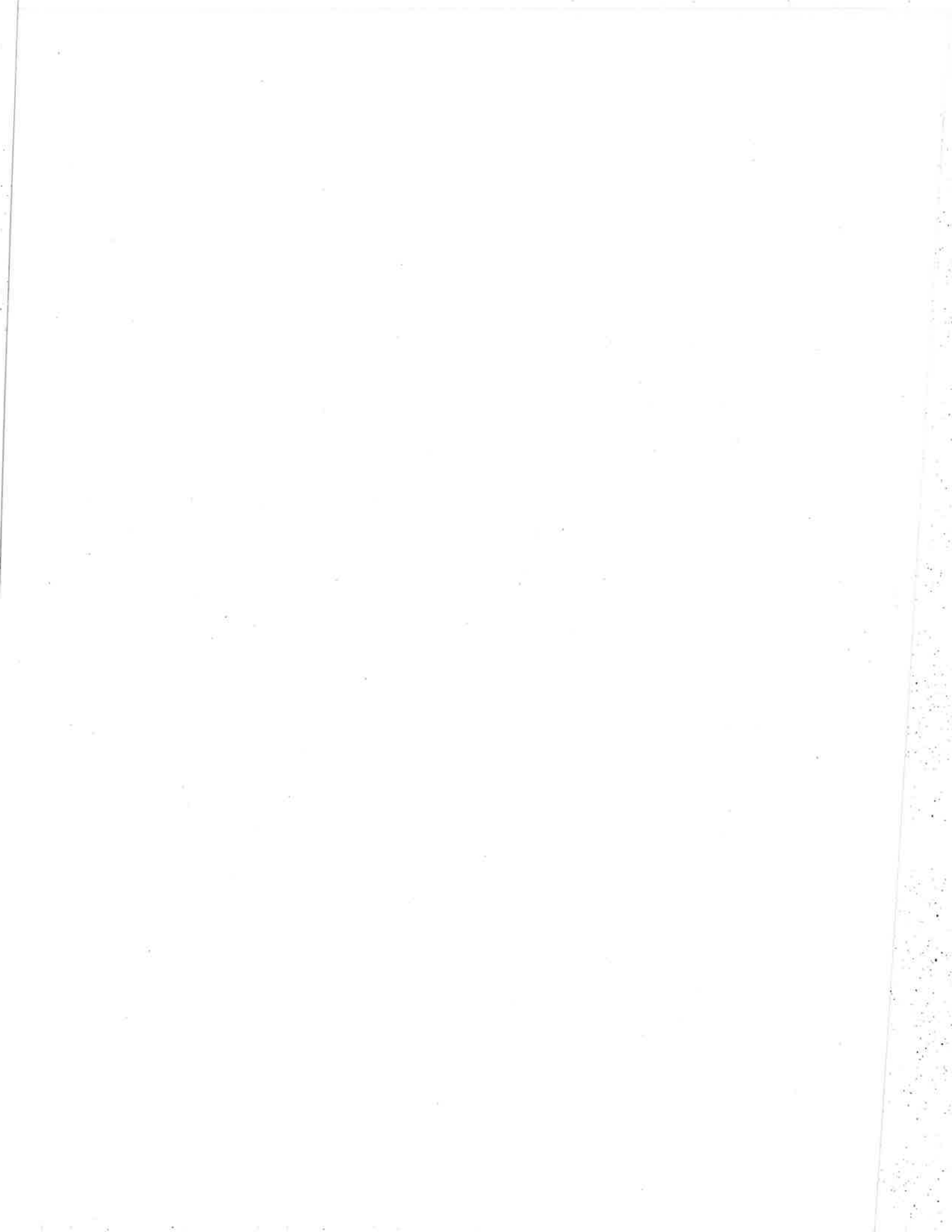


**THROUGH
THE
REVOLVING
DOOR**

An
Analysis
of
Rural
Wastewater
Facility
Financing

by
**The Center for
Community Change**

with support from
The Ford Foundation
and
**The Rural Economic
Policy Program
of The Aspen Institute**



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of Rural
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Prepared for
The Ford Foundation
and the Rural Economic Policy Program
of The Aspen Institute

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EXECUTIVE SUMMARY

Why Examine Rural Wastewater Facility Needs?

WATER QUALITY is a matter of increasing concern in cities and towns across the United States. Federal and state regulators report that drinking water and sewage treatment facilities serving small, mostly rural populations currently have the highest rates of noncompliance with federal environmental standards. In 1988, more than 90 percent of all small water systems were in violation of Safe Drinking Water Act standards, and the noncompliance problem is expected to become even more severe as increasingly stringent environmental standards are implemented.

Small systems typically need financial and management assistance to upgrade and maintain systems to federal standards. A system with a small customer base has limited revenue-generating capability, cannot achieve economies of scale, and cannot spread costs effectively. Regulators and financial analysts predict that households served by small systems face extraordinarily large increases in water and sewer charges associated with evolving environmental standards. There is clearly a need for coordinated strategies to address the "small system problem."

By definition, most of the water and sewer systems in rural America *are* small systems. Their noncompliance problems are compounded by the socioeconomic characteristics of rural areas. In many parts of the United States, rural infrastructures have never been adequate and have been deteriorating even more severely than their urban counterparts. The need to modernize existing water/sewer systems — and, at even greater cost, to create new systems where none now exist — is a challenge beyond the capabilities of many small rural communities. And because rural households are, on the average, more likely to be poor than households served by urban-suburban systems, rural systems are at a particular disadvantage in financing federally required system improvements. Their customers are poor; their

communities typically have a limited tax base and a low or nonexistent credit rating. The noncompliance problems of these systems, however, have been inadequately documented; relatively little national data is available on the water and sewer needs of rural communities — which makes it all the more difficult to address those needs.

This report was undertaken as part of an effort to clarify the wastewater facility needs of rural and rural poor communities and to assess the outlook for addressing these needs in light of changing environmental regulations. Our goals are twofold: 1) to examine the current status of rural wastewater treatment systems; and 2) to determine whether rural communities will have access to affordable funding to address their environmental infrastructure needs.

The Impact of the Water Quality Act of 1987

The primary focus of the report is on the impact of the Water Quality Act of 1987, which authorized the termination of the Environmental Protection Agency's Construction Grants program and provided a process for establishing state revolving funds (SRFs) to replace EPA Construction Grants as a permanent source of wastewater treatment facility financing. Unlike the Construction Grants program, which provided grants directly to local entities, SRFs are loan programs in which the initial capital is provided by federal "seed money" augmented by state funds. States make loans to local entities, and as the loans are repaid, the SRF is replenished. Because of this structure, SRFs require greater scrutiny of the financial and managerial capabilities of potential borrowers than was true of the Construction Grants program. Given the limitations of many rural communities, it is important for policymakers to know whether this major change in financing wastewater treatment needs will be successful — and, to the extent that SRFs fall short of meeting the need, it is equally important to identify necessary changes.

The Water Quality Act established a schedule for phasing-out the Construction Grants program by Fiscal Year 1990 and provided guidelines for establishing and operating federally capitalized SRFs. The Act requires states to comply with federal requirements when issuing loans obtained as a direct result of federal capitalization grants. States must also ensure that the long-term viability of the revolving fund is protected as a permanent source of financing after the federal capitalization period ends in FY 1994. Further, states will continue to be responsible for ensuring that publicly owned wastewater treatment facilities meet federal standards *with or without federal funds*. The transition to SRFs is perhaps the most significant change wrought

by the Water Quality Act, because it marks the end of a 20-year period of federal capital grant investment in municipal wastewater treatment facilities.

The Water Quality Act does not require state revolving funds to target rural wastewater needs or to provide increased subsidies to low-income communities. The extent to which such needs are effectively targeted thus depends on state program priorities. Accordingly, a nationwide survey of SRFs was conducted for this report to identify actions that states are taking to address rural wastewater facility needs.

Through the Revolving Door provides basic data on rural wastewater facility needs in order to facilitate an evaluation of the match between needs and program priorities. The report then assesses the impact of changing wastewater facility funding policy on the distribution of funding in federally capitalized SRFs and in the other two principal sources of funding: Farmers Home Administration (FmHA) Water and Waste Disposal Loans and Grants and state bond banks. The report examines the accessibility and affordability of all of these funding resources to determine whether there is a match between rural capacity and funding program design, and offers four state case studies — Arizona, Minnesota, Washington, and West Virginia — to assess this question in varying contexts. The report also looks at the possible advantages of enhancing access to credit by creating a federally sponsored bond marketing authority specifically to underwrite rural water and sewer projects. Finally, *Through the Revolving Door* offers a number of policy recommendations aimed at helping rural poor communities to more effectively address their wastewater facility financing requirements.

The Environmental Regulatory Context

Since the establishment of the U.S. Environmental Protection Agency in 1970, federal environmental regulation has evolved to address emerging public health and environmental quality problems in all sectors of government, business and industry. Federal regulations currently govern a wide range of services provided by local governments including sewage treatment, drinking water, hazardous waste disposal and solid waste management.

Early federal environmental regulation focused primarily on controlling major sources of pollution such as industry (e.g., automobile emissions standards) and large cities (e.g., basic sewage treatment requirements). The drinking water and sewage treatment problems of rural communities were not a regulatory priority, and relatively little federal funding was obligated to help rural communities comply with federal standards.

More recently, the scope of environmental regulation has broadened to include communities whether large or small, urban or rural. Persistent, much-publicized problems — such as toxic waste dumps and groundwater contamination — have reinforced public support for better protection and tougher standards. The cost of implementing and complying with environmental standards has escalated steadily as the scope of environmental regulation has grown. At the same time, however, the federal role in financing environmental services has been on the decline, particularly since 1981, and states and local governments are increasingly responsible for financing environmental compliance. Whether they can muster the necessary resources — let alone target them fairly and effectively — is unclear. Paying for environmental programs and environmental services is one of the major challenges of the 1990s.

EPA's Office of Municipal Pollution Control, which enforces federal Clean Water Act regulations, has estimated that it will cost \$63 billion to bring the nation's wastewater treatment facilities up to federal standards. This estimate, it should be noted, is based on serving the *current* U.S. population, and not on projections of future needs. Currently operating facilities serve 71 percent of the U.S. population; when these facilities have been upgraded, 248 million people — 87 percent of the population — will be served by up-to-code systems.

EPA's Office of Drinking Water, which enforces the drinking water standards of the federal Safe Drinking Water Act, estimates that an additional \$7 billion will be needed nationwide annually to cover total capital costs for upgrading treatment to comply with the contaminant requirements incorporated in the Act's 1986 amendments, and an additional \$1.7 billion annually will be needed to cover system monitoring and reporting requirements which were also part of the amendments.

These estimates may be conservative. The General Accounting Office uses \$83.5 billion as a ballpark estimate of the cost of financing the nation's current wastewater treatment needs.¹ Estimating is something of an art, given the scope of the problem, the rapidly escalating cost of public works construction, and the fact that few federal laws have either required EPA to assess the costs of compliance or provided for adequate data collection.

In any case, the challenge of financing the nation's wastewater treatment needs must be viewed in a broader context: the entire panorama of unmet environmental needs — from ozone to ocean. EPA has calculated that

¹ U.S. General Accounting Office, *Water Pollution: States' Progress in Developing State Revolving Loan Fund Programs* (GAO/RCED-91-87), Washington, D.C., March 1991.

the public and private sectors will need an additional \$61 billion *each year* to meet current and new environmental mandates between now and the year 2000.² Where will the money come from? That question haunts the federal and state regulators and financial analysts who have been exploring options for financing the nation's wastewater treatment needs.

Finding Funding for Regulatory Compliance

In the 1970s, the federal government assumed a large share of the costs for regulatory enforcement and environmental services. Since 1972, Congress has authorized funding for municipal sewage treatment facilities nationwide under the Clean Water Act. The Safe Drinking Water Act, which sets forth regulatory standards for public drinking water systems, has never included funding authorizations to help systems meet compliance requirements. The Consolidated Farm and Rural Development Act of 1961 and subsequent amendments have enabled the Farmers Home Administration to make a significant financial investment in low-interest loans and grants for both drinking water and sewage disposal projects serving rural low-income communities, particularly since 1972. However, FmHA funding programs were established simply to help rural and rural poor communities obtain affordable financing for needed public works projects; FmHA's programs were not intended or designed to address regulation-driven needs.

Since 1981, the federal government has increasingly delegated enforcement and funding responsibility to state governments. They, in turn, have relied heavily on the municipal bond market, user fees, and tax assessments. Individual households have thus become increasingly responsible for — and burdened by — paying the cost of financing capital construction and facility operation and maintenance. Barring a major shift in federal-state-local relationships, this trend is expected to accelerate throughout the 1990s.

The EPA Construction Grants program for wastewater treatment facility funding, authorized under the 1972 Clean Water Act amendments, ranks as the second largest domestic public works spending program. Between 1972 and 1990, more than \$55 billion in Construction Grants assistance was invested in municipal wastewater treatment facilities serving more than 57 million Americans.³ Construction Grants funding priorities targeted larger municipalities because of high population density, large

² U.S. Environmental Protection Agency, *A Preliminary Analysis of the Public Costs of Environmental Protection: 1981 - 2000*, 1990.

³ *EPA Journal*, December 1987.

volume of wastewater flow, and the resulting impact of improved facilities on surface water quality.

Under the Water Quality Act of 1987, federally capitalized state revolving funds are now replacing Construction Grants as the primary source of wastewater treatment funding available to help public entities comply with federal standards. Federal requirements apply to SRF loan funds that have been obtained as a direct result of federal capitalization. SRF loans may be issued for a maximum 20-year term and cannot be offered as grants.

Overall, debt financing has become the predominant financing mechanism for water and sewer projects. Local governments may currently borrow to finance capital projects from SRFs, state bond banks and financing authorities. Some state and federal programs continue to offer grants, but program guidelines generally require applicants to borrow to cover some share of project costs. The FmHA Water and Waste Disposal Loan and Grant is the largest funding program that offers funding subsidies for projects serving rural and rural poor communities. FmHA offers grants to help lower income communities reduce user charges to affordable levels. Applicants must meet debt service guidelines and demonstrate economic need before grants will be awarded for projects.⁴

As noted, Clean Water Act priorities directed funds mainly to larger municipalities where greater water quality and public health impacts could be achieved by constructing and upgrading wastewater treatment plants. The cost and complexity of meeting preliminary Construction Grants requirements also tended to favor communities with greater organizational skills and technical capabilities — and, by the same token, tended to freeze out smaller, often rural, communities with less technical expertise.

Because of the competition from larger municipalities and the time delays involved in meeting federal requirements, many small and rural communities have only recently achieved Construction Grant priority funding status. Large metropolitan areas with populations greater than 500,000 received nearly 25 percent of all Construction Grants funding — some \$10.926 billion — between FY 1973 and FY 1990. Regardless of their importance, communities of this size represent only .2 percent of all municipalities nationwide. During the same time period, small communities (defined by

⁴ It should be noted that FmHA may obligate grants totalling up to 75 percent of total project costs to applicants with incomes below the national poverty level for projects that address environmental violations and public health hazards. FmHA has awarded an increasing share of grant funds, nearly 70 percent of each community's FmHA contributions in FY 1988, to low-income communities that received grant funding from FmHA.

EPA as those with populations below 3,500) received 11.7 percent of all Construction Grants assistance, totalling \$5.272 billion. Yet communities of this size account for more than 70 percent of all U.S. municipalities — and for a large share of the facility needs of many states. In Pennsylvania, for example, small communities account for the majority of the state's facility needs, estimated at \$3.2 billion in 1988; but large municipalities, especially Philadelphia, received the majority of federal assistance.

How Regulators Identify Wastewater Facility Needs

The 1972 Clean Water Act required EPA to conduct a national survey of municipal treatment works every two years to assess the capital investment needed to build or improve municipal treatment facilities that meet federal standards. EPA Needs Survey data is submitted to Congress and serves as the basis for determining the allotment of funds for the Construction Grants program. The data has also allowed Congress to evaluate the impact of federal wastewater facility funding on facility compliance status. The 1988 EPA Needs Survey does not reflect changes in funding eligibilities or enforcement requirements set forth in the 1987 Water Quality Act.

The biennial Needs Survey provides the most detailed information available on the compliance status of the nation's municipal wastewater treatment facilities. EPA has established documentation criteria for cost estimates and facility needs to ensure that identified needs are accurate and address compliance requirements.

National Wastewater Needs Data

1988 EPA Needs Survey data and interviews with SRF staff nationwide provide the basis for rural and rural poor wastewater facility needs data presented in this report. However, EPA Needs Survey data contains only *documented* facility needs that address regulatory compliance. SRF staff nationwide agree that rural needs are underrepresented in national needs data because rural communities often lack sufficient needs documentation. For example, 39 states submitted separate facility needs estimates to supplement the 1988 EPA Needs Survey showing that there is a critical need to develop new municipal wastewater treatment facilities in rural areas that are currently served by individual on-site systems. Separate needs estimates did not, however, meet EPA documentation criteria.

EPA's survey focuses on regulation-related needs, but offers little additional information about the applicant's ability-to-pay or management

capability. And the only information about the facility service population contained in national data is the number of residents that are or will be served by treatment and collection facilities. We found that *EPA's Needs Survey as presently structured does not allow analysts to determine whether communities have the financial or management capacity to address identified facility needs and achieve compliance.*

Wastewater Facility Needs in Rural Poor Communities

According to the 1988 EPA Needs Survey, \$63 billion is required to bring existing and planned facilities nationwide into compliance with current federal standards. There will be 24,141 facilities nationwide when all documented facility needs are met.

EPA data show that 75 percent of all documented facility needs are in rural communities of fewer than 10,000 persons. The estimated cost of addressing rural community needs is \$13 billion — almost a fourth of the national needs estimate. But because EPA data provide the basis for state SRF allocations, states with significant rural needs will receive considerably less federal SRF funding than states with higher-cost urban projects.

We found that wastewater facilities in rural and rural poor counties account for: 1) most of the backlog of secondary treatment facilities needed to meet Clean Water Act standards; 2) the highest incidence of noncompliance with wastewater discharge permit standards; and 3) the largest share of all noncompliance situations requiring new construction and treatment facilities where none now exist.

There is a disproportionately high need for physical and operational wastewater facility improvements in rural poor counties in the South. The region has 36 percent of all facilities in rural poor counties nationwide but accounts for 44 percent of all documented noncompliance among such facilities. Further, the need for new collector sewers — indicative of the need for new sewer systems — is greatest in the South, where such needs account for 35 percent of the region's total rural poor facility needs.

SRF staff confirm that limited financial capacity and poor operation and maintenance contribute to the high incidence of noncompliance among facilities serving rural poor communities. *This same problem — inadequate financial capability — creates an impediment to addressing rural poor facility needs. SRF staff report that many rural poor communities that require new municipal facilities cannot develop affordable projects because they cannot achieve economies of scale or spread project costs effectively.*

Transition to State Revolving Funds

Based on a nationwide survey of SRFs, we found that *rural poor wastewater facility needs will not be adequately addressed in state revolving fund programs*. SRF staff report that rural poor facility projects that were not addressed during the Construction Grants program — specifically new sewer collector and treatment facility projects — cannot be financed with 100-percent loans, regardless of interest-rate subsidies.

Federal SRF requirements restrict states' ability to target rural poor facility needs by offering more accessible or affordable funding. Preliminary loan requirements present an obstacle to many rural communities that lack the capability to finance technical studies, and SRF loan priorities reward applicants that are ready to proceed to construction. This acts as a further barrier to rural poor communities. Communities with greater financial resources are more likely to be able to take advantage of the rural set-asides available in 16 states (averaging 10 percent of total SRF funds in those states).

States are seeking to accelerate compliance with federal requirements so that revolved funds may be loaned with greater flexibility. More than half of all SRFs are therefore issuing the vast majority of loan funds to larger municipalities that have the financial and organizational capability to meet federal requirements and loan conditions. Cities are more likely to be ready to proceed to construction — because they are more likely to have met preliminary requirements. Many are able to repay loans on accelerated schedules because of their revenue-generating capability. Although the goal of this strategy is to generate a healthy repayment stream that will enable SRFs to make loans with no federal strings attached, the effect is to give larger municipalities easier and earlier access to limited funds. Low-income rural communities face the prospect of having to wait for revolved funds to trickle down to them at some uncertain time.

Principal Findings

Rural Wastewater Facility Needs

- Reliance on inadequate individual ("on-site") septic systems is prevalent in rural and rural poor communities. *Failing septic systems need to be replaced by new municipal collection and treatment facilities.*

- *More than 16 percent of the facilities in rural poor counties are not providing secondary treatment.* This is twice the national rate. One out of every six facilities in rural poor counties is discharging either raw sewage or sewage

that has been treated insufficiently to meet secondary-treatment standards. Inadequate treatment is most prevalent in poor rural counties in the South, particularly in Arkansas, Mississippi and Louisiana.

■ *24 percent of currently operating wastewater treatment facilities located in rural counties are violating their effluent discharge permits.* Facilities in poor rural counties have the worst compliance record, with 30 percent discharging effluent into surface waters at higher levels of contamination than their permits allow.

■ *32 states report that wastewater facility compliance problems are prevalent among facilities serving residents who can least afford to finance required improvements.* Non-complying facilities typically serve a small, often rural, low-income customer base.

■ *Rural poor facility noncompliance is most often caused by poor operation and maintenance.* Revenues do not cover the costs of facility maintenance and equipment replacement, and facilities often do not employ trained operators. As a result, such systems may lack the capacity to maintain compliance even when facilities are upgraded.

State Revolving Funds

■ *States are targeting SRF loans to larger municipalities with greater financial and organizational capability because they have met preliminary requirements and are ready to proceed to project construction.*

■ *States are overwhelmingly providing incentives for accelerated loan repayment schedules and encouraging disbursement of large loans tied to federal capitalization monies.* More than half of all states are:

- providing interest-rate subsidies to borrowers able to enter into short-term loans, regardless of the borrower's need for subsidized assistance;
- encouraging participation of cities with high bond ratings to enhance the marketability of SRF bonds; and
- lending to projects that have met all preliminary planning and design requirements by providing high priority ranking for readiness to proceed to construction.

■ *Facilities with small customer bases serving low-income households are unlikely to be able to afford SRF loans and will require grants to address their wastewater facility needs.* Forty states anticipate that some small systems will be unable to afford SRF loans; 23 states consider the lack of grant funds to be the greatest obstacle to addressing rural low-income facility needs; and 19 states report that excessive project costs, based on dollars-per-household cost or user rates as a percentage of median household income, are the largest impediment to financing rural facility projects with SRF loans.

■ *34 states are taking actions to target a share of SRF funds to small, rural and low-income facilities.* However, such actions are likely to benefit only those facilities that can otherwise qualify for SRF funds and can afford to meet debt repayment requirements. *Unless rural poor communities can meet preliminary requirements, they will not have access to SRF loans even if funding terms are affordable and funds are earmarked for rural low-income communities as a group.*

■ 16 states are setting aside funds for a target population or project type that benefits small, rural and/or low-income communities. Excluding the New York SRF, in which \$93 million has been set aside for small and low-income communities, the average set-aside is 10 percent of the SRF allocation, or \$4.1 million.

■ SRFs in eight states — Illinois, Kansas, Missouri, New Jersey, Ohio, South Carolina, Washington, and Wisconsin — have established a separate project category to address rural facility needs, primarily for new sewer facilities in unsewered areas.

■ SRFs in 12 states — Delaware, Kentucky, Maryland, Minnesota, Montana, Nebraska, New York, Pennsylvania, Tennessee, Utah, Virginia and West Virginia — offer loans at interest rates on a sliding scale to as low as zero percent, based on ability-to-pay or demonstrated economic need.

■ SRFs in 10 states either offer or are planning to offer loans at two fixed interest rates, with the lower rate (usually zero percent) reserved for facilities serving "hardship" areas experiencing economic distress. The states are Indiana (proposed), Minnesota, New Mexico, Ohio, Pennsylvania, South Carolina, Texas, Vermont, Washington, and Wisconsin (proposed).

■ Subsidized interest rates are also offered for specific project types. Both Arkansas and New York offer lower-interest-rate loans for projects that utilize innovative/alternative (I/A) technologies to encourage the use of lower-maintenance-cost technologies in rural areas. Wisconsin and Illinois SRFs offer interest-rate subsidies for unsewered community projects.

■ Some states are developing operation and management assistance programs to help rural poor facilities improve budget management, establish sufficient user-rate schedules, and develop maintenance plans to meet compliance requirements.

Potential Impact of SRFs on Other Funding Resources

Farmers Home Administration

FmHA project funding data from FY 1985 to FY 1988 was used to evaluate FmHA's role in sewer project funding. Water projects account for more than half of all FmHA-funded projects during this period; FmHA sewer projects represent 40 to 46 percent of all FmHA projects funded. Nearly a third of all FmHA sewer projects also received Construction Grants assistance, averaging 55 percent of project costs.

More rural poor communities may submit requests for FmHA assistance as a result of the transition to SRFs. *FmHA, however, cannot fill the financing gap created by the termination of the EPA Construction Grants program.* FmHA annual grant funding allocations average a tenth those of EPA. The average size of sewer projects jointly funded by EPA and FmHA is two to four times larger than sewer projects funded by FmHA.

From FY 1985 to FY 1988, FmHA funded 1,923 water projects totalling \$102.1 million in loans and grants. Because of FmHA's significant role as a funding source for drinking water projects serving rural poor communities, it is unlikely that sewer projects will come to dominate the FmHA portfolio.

State Bond Banks

State bonding authorities provide public entities, primarily municipalities, with access to tax-exempt credit to finance community facility projects including water and sewer infrastructure. Interviews were conducted with representatives of 13 state bond banks and seven state financing authority representatives to obtain information about the characteristics of bond bank beneficiaries, financing terms and obstacles to bond bank participation.

Historically, state bonding authorities have helped small, rural communities obtain financing at market interest rates for projects averaging \$2 million or less. Fast funding turnaround and simplified access to the bond market are the greatest savings offered by bonding authorities. Several

bonding authorities were created specifically to assist small communities obtain financing to cover the local share costs of sewer projects that also received Construction Grants assistance.

Bonding authorities may no longer serve as a financing mechanism for local-share costs following the termination of the Construction Grants program. Rather, bonding authorities may offer small, rural communities a more accessible financing alternative than SRFs because of their streamlined procedures, fast turnaround and simple preliminary requirements. However, bond bank participants must charge sufficient user rate structures to cover operating costs and annual debt fees. *Unless revenue-generating capacity and budget management practices are improved, numerous rural and rural poor facilities may not be able to borrow from either state bonding authorities or SRFs.*

Impact of New Regulations

As noted, many SRFs are targeting the majority of their loan funds to larger municipalities in order to comply with federal requirements and protect the long-term viability of revolving funds. A smaller share of SRF funds is being targeted to rural facility needs by using set-asides, separate funding categories, and interest-rate subsidies. At issue is whether SRF targeting based on ability-to-pay will result in SRF access for rural poor communities that require substantial subsidies to complete projects.

Unsewered rural poor communities cannot afford to finance new sewer collection and treatment facility projects with 100-percent SRF loans, even with interest-rate subsidies. Yet rural poor facility needs data show that new sewer facilities account for 90 percent of documented facility needs. *Rural poor communities will not be able to provide new sanitation systems meeting federal standards unless additional subsidies are provided.*

As a general rule, the states providing SRF loan subsidies or supplemental grants to meet treatment facility needs in rural poor communities are relatively affluent — at least by comparison to other, economically distressed states. It is generally true, therefore, that in most of the states with the greatest need — that is, with the greatest numbers of inadequate facilities — rural poor communities do not have access to affordable funding.

The transition to SRFs has resulted in increased scrutiny of facility operation and management practices. Some states have developed assistance programs to help facilities improve budget management and capital improvement planning. Given the high rate of noncompliance among rural poor facilities, such assistance may be an effective means of targeting rural poor facility needs.

Recommendations

EPA Needs Survey Data

Clean Water Act funding has required that states address compliance problems and regulation-based needs. However, if SRFs are to issue loans on the basis of financial capability, a broader spectrum of needs factors should be included in EPA Needs Survey data. In addition to economic characteristics, information on system organization and management would allow funding agencies to determine facilities' ability-to-pay and to maintain compliance with federal standards.

The SRF state allocation formula, based on the EPA Needs Survey, reflects the significant cost of urban projects. However, the vast majority of documented facility needs are located in rural communities. The SRF allocation formula should reflect that concentration of needs.

Rural Poor Facility Needs

EPA Needs Survey data and SRF survey responses show that rural poor communities must develop new municipal facilities. In fact, rural and rural poor communities account for more than 90 percent of the national facility need for new facilities. Water Quality Act priorities should address the need for basic infrastructure in rural poor communities.

Rural poor communities should receive at least the same level of capital investment that larger municipalities received during the Construction Grants program. Moreover, facility funding terms should be based on ability-to-pay to ensure that rural poor communities obtain access to affordability facility financing.

Regulators should investigate the reasons for the high incidence of facility noncompliance among facilities serving rural poor communities. Regulators should evaluate facility budgets, maintenance schedules, operator responsibilities and physical plant to ensure that, if upgraded, facilities can be adequately operated and maintained.

State Revolving Funds

Loan Accessibility: State and federal SRF staff should develop more flexible criteria for preliminary studies so that, based on facility needs, rural

applicants may work with state technical assistance staff to develop adequate preliminary studies. When more in-depth studies are required, preliminary planning assistance grants should be available. Such measures will increase rural community access to SRF loans.

Loan Affordability: SRFs should be separated into two funds, one that revolves and is self-sustaining and another that functions simply as a lending institution. The self-sustaining revolving fund should offer loans to creditworthy applicants that do not require interest-rate subsidies. The lending institution should offer loans based on applicants' ability-to-pay. Debt service requirements for loan repayment should target reasonable user charge levels that combine debt repayment and operation, maintenance and reserve costs. When debt service requirements cannot be met, supplemental grants should be provided to reduce user charges to an affordable level.

Unsewered Rural Poor Facility Needs: Where soil and topography allow, unsewered rural communities should have access to grants to replace inadequate septic systems and to create management districts to ensure that such facilities are properly operated and maintained.

Where municipal collection and treatment facilities are needed, projects should be phased or separated into segments. Consolidation options should be evaluated as a means of spreading costs. Other cost-cutting measures such as use of self-help volunteer labor and shared equipment should be encouraged where appropriate. Rural poor communities should receive 75-percent grants for initial capital construction costs, just as larger municipalities received in the early years of the Construction Grants program. State staff should work with rural communities to encourage the use of low-maintenance cost technologies.

Rural Poor Facility Noncompliance: Financial audits should be conducted on all rural sewer systems. Rural communities should receive assistance to evaluate financial capability, establish budgets, and develop capital improvement plans. Facilities should be required to maintain reserve funds that can be used for capital expenses. In cases where facilities would be required to charge unaffordable user rates to cover operating expenses, facility consolidation options should be explored. In some cases, rural poor communities that did not benefit from Construction Grants may gain access to SRFs when funds are offered for preliminary studies.

INTRODUCTION

*Rural Americans need better systems
to supply drinking water and provide sanitation —
but even as needs grow, federal funding declines.
Can state revolving loan funds meet the need?*

WHAT ARE THE OBSTACLES — and opportunities — that rural communities face as they try to improve the quality of their drinking water and the adequacy of their sanitation systems?

This is a question which, while hardly new, is acquiring new urgency, in part because of growing concern about the inadequacy of many rural systems and in part because recent changes in federal laws have led to increasingly complex and costly requirements that operators of rural drinking water and wastewater treatment facilities must seek to meet.

With the implementation of the 1986 Safe Drinking Water Act amendments and the 1987 Clean Water Act, the cost of delivering and maintaining drinking water and sewage disposal systems is increasing substantially. At the same time, federal public works expenditures are declining, and are expected to continue to decline. Termination of the Environmental Protection Agency (EPA) Construction Grants program in Fiscal Year 1990 represented a particularly significant cutback in federal funding support for rural facilities.

EPA currently predicts that the cost of meeting emerging federal physical improvement and monitoring standards will require rural water and sewer systems to impose significant increases in user charges — increases that will be notably higher on a per-capita basis than will be necessary for most urban systems. But many rural consumers are too poor to pay such charges. The viability of many systems serving predominantly low-income consumers

will thus be at increased risk. But no one expects rural facilities to receive a greater share of what little water and sewer funding remains. In fact, as states establish new state revolving loan funds (SRFs) to replace the Construction Grants program, America's rural communities can be expected to suffer a *decline* in their share of wastewater facility funding.

The Rural Wastewater Facility Financing Project

The Aspen Institute initiated a project in 1990 to assess the outlook for rural sewer project financing in light of changing regulatory requirements and reductions in federal public works spending. The project team, led by the Center for Community Change and assisted by a six-member advisory panel, identified current methods that direct funding to sewer projects serving rural low-income areas and analyzed trends in rural-urban funding distribution.

Project Objectives. The project team pursued three principal research objectives:

- ① Define the sewer needs of rural poor communities.
- ② Evaluate the targeting methods and funding recipient characteristics of the two major federal funding programs — the EPA Construction Grants Program and the Farmers Home Administration (FmHA) Water and Waste Disposal Loan and Grant Program — as well as the federally capitalized SRFs for wastewater facility projects.
- ③ Examine the ability of two credit enhancement vehicles — state bond banks and a secondary market for small community infrastructure projects — to fill critical gaps in rural facility financing.

This report is the product of that research. It evaluates the potential for water quality improvements in rural low-income communities by analyzing the relationship between water and sewer funding resources and rural water and sewer system needs. The report offers policy recommendations, based on our findings, to improve the availability of affordable rural water and sewer project financing.

Research Design

Needs Analysis. To help determine rural sewer needs, we relied primarily upon a key source of essential data: EPA's 1988 Wastewater Needs Survey.

The survey provided specific estimates of compliance costs and the types of improvements that facilities need.

Although the EPA Needs Survey maintains records for existing and planned facilities, records are not separated by the rural or urban location of service population. To remedy this limitation, the project team utilized a measure of rural poor counties to identify the sewer facility needs located in these counties. Given their location, these facilities are likely to serve sparsely populated lower-income communities. Thus, taken together, the needs data we collected allows a comparison of rural poor and nationwide facility characteristics, including rates of non-compliance.

Next, the project team conducted four in-depth case studies of funding programs in Arizona, Minnesota, Washington, and West Virginia. In the process, we surveyed state revolving loan fund staff to confirm our initial database findings and obtain additional information about rural sewer needs.

Although federal data do not include system revenue, operating costs or operation and management structure information, these components clearly affect financial and technical assistance needs. Accordingly, the project team surveyed state revolving fund staff nationwide to supplement sewer needs data with information on the financial and management characteristics of facilities serving rural poor communities.

Federal Funding Program Analysis. Our federal program analysis focused on three funding initiatives: the EPA Construction Grants program; the FmHA Water and Waste Disposal Loan and Grant program; and the federally capitalized SRFs that will replace federal grants as the primary source of wastewater facility funding by 1994. To assess each program, we reviewed program regulations and guidance documents and then interviewed agency staff. We used case studies of state programs (*see Appendix A*) to obtain in-depth information on program targeting.

■ **EPA Construction Grants.** The EPA Construction Grants program provided wastewater treatment project funding between 1972 and 1990, as authorized by the Clean Water Act of 1972 and subsequent amendments. No additional appropriations are authorized for the program in FY 1991. The 1987 Clean Water Act authorizes the initial capitalization of SRFs from FY 1990-94, replacing Construction Grants as the primary source of wastewater facility funding.

The Clean Water Act and subsequent amendments do not require that Construction Grants or SRF loans be allocated by economic need. Thus, unlike the FmHA data, federal reporting on Construction Grant recipients offers little demographic detail. To compensate, the project team reviewed the

EPA Grants Information Control System (GICS) data to determine what share of program funds were obligated to small communities. The team also assessed the potential impacts of Clean Water Act changes — including its termination in FY 1990 — on funding to small communities.

■ **State Revolving Loan Funds.** The project team conducted a nationwide mail survey and follow-up phone interviews with SRF staff to obtain needs, compliance, and funding distribution information for the SRF programs. Forty-five states responded to the mail survey and provided supporting material, including information on program regulations and structure, priority systems and Intended Use Plans. Each program review examined funding access and the actual or potential funding distribution based on program priorities, assistance provided, targeting methods employed and supplemental funding offered. We assembled and tabulated the survey results in matrix form (*see Appendix B*), indicating the targeting methods used to address rural low-income facility needs.

■ **Farmers Home Administration.** FmHA Water and Waste Disposal Loan and Grant funding eligibility is restricted to rural and rural poor communities. As a result, FmHA data contain demographic characteristics about program recipients, including population size and community income. We compared FmHA-EPA jointly funded sewer projects to FmHA-only projects from FY 1985-88 to determine whether changes in federal Construction Grant funding have had an impact on the level and demographic characteristics of FmHA-funded sewer projects. We also used the FmHA-EPA project funding analysis to assess the potential impact of the SRF transition on future FmHA water and sewer project funding.

Credit Enhancement Alternatives Analysis. To judge how extensively small and low-income communities participate in bond bank issues, the project team interviewed state bond bank staff by telephone. Interview questions focused on bond bank procedures, participant characteristics, financing terms, bond issue size, and obstacles to small community participation. We then compared borrowing costs of state bond banks to state revolving loan funds to further analyze the advantages and disadvantages of each.

Finally, the project team developed a secondary market mechanism model for financing small community infrastructure projects, which we call the Water Facilities Bond Market Authority. We gauged its potential impact on financing rural infrastructure projects by estimating the savings and credit requirement advantages it might offer. We also appraised the prospects for establishing a secondary market in light of changing federal tax laws.

Advisory Panel Review. At the midyear point, the team convened a meeting of federal and state officials, local nonprofit technical assistance providers and

financial analysts to discuss the initial analysis, review state case studies, and evaluate project findings based on criteria developed by project staff. The panel's recommendations and conclusions provided useful perspectives on the relationship between federal and state programs, as well as their impact on local needs. Panel comments are incorporated in this report.

Conclusions and Recommendations. The project team produced conclusions and recommendations based on research findings, field visits and advisory panel discussions. The conclusion and recommendations included in this report address both the salient points of our rural sewer needs data analysis and the need for further needs analysis.

Report Structure

Chapter One provides data on rural sewer needs, rates of compliance with federal standards, and projected costs of compliance, where available, and assesses the financial and managerial constraints that rural systems face. This information helps the reader assess the capacity of rural communities to access funding resources and comply with regulatory standards. *Chapter Two* provides an overview of major federal funding programs for sewer projects and the trend toward increased state and local financing responsibility for infrastructure projects. *Chapters Three, Four, Five, Six, and Seven* present an analysis of the following funding resources: EPA Construction Grants Program; federally capitalized SRFs; FmHA Water and Waste Disposal Loan and Grant program; state bond banks; and the concept of a government-sponsored enterprise to finance water and sewer projects in small communities. Each funding alternative is evaluated to determine whether funds are adequately directed to rural needs through the use of outreach, targeting, program priorities, and technical assistance.

Four case studies of state funding programs in Arizona, Minnesota, Washington, and West Virginia are provided in Appendix A. Each contains an in-depth analysis of FmHA and state revolving fund programs. The case studies provide insight into the implementation of federal and state water and sewer funding programs and the extent to which these programs meet rural water and sewer needs.

The final chapter of the report presents conclusions and recommendations on water and sewer funding policy. These are based on four key questions that framed our research and formed our criteria in assessing programs: How accessible is funding? How affordable are the financing terms? What are the program's funding priorities? What management assistance does the program provide? In our view, these questions — and how they are addressed — will determine the future viability of many if not most rural water and sewer projects.

CHAPTER 1

▼

RURAL WASTEWATER FACILITY NEEDS

Analysis of EPA Needs Survey data and interviews with State Revolving Fund staff confirm that rural needs are great, but inadequately documented — and thus unlikely to be addressed.

THIS CHAPTER OFFERS AN ANALYSIS of wastewater treatment facility needs in rural and rural poor communities, based on data from the 1988 EPA Needs Survey and on interviews with SRF staff nationwide. The first section of the chapter describes the context within which national needs data have been compiled and the documentation criteria used in the EPA Needs Survey. Rural wastewater facility needs are divided into two categories: individual facility needs and community facility needs. The needs data discussed in this chapter provide a basis for determining whether state revolving fund programs, described in Chapter 4, are adequately targeting rural needs.

Wastewater Treatment Requirements

The 1972 Clean Water Act and subsequent amendments established treatment standards and monitoring requirements for municipal wastewater treatment facilities — known as Publicly Owned Treatment Works (POTWs) — to protect public health and to ensure that the quality of the nation's water resources is both protected and enhanced. Treatment standards are based on water quality criteria governed by water use. For example, higher levels of treatment are normally required for sewage discharged into surface water sources used for drinking water than for sewage discharged into water sources used primarily for recreational purposes.

The 1972 Clean Water Act authorized federal Construction Grants to help municipalities meet federally mandated treatment standards. The Act

and subsequent amendments specified eligible funding activities and funding priorities within the Construction Grants program. Grant eligibility has been restricted to public entities, primarily local governments.

The 1972 Act mandated that all POTWs provide "secondary treatment"¹ of wastewater and established a 1983 deadline for construction of secondary treatment facilities. In 1984, the deadline was extended to 1988, when EPA and the states issued the National Municipal Policy (NMP), specifying that all wastewater treatment facilities would be required to meet secondary treatment standards *with or without federal funds*.

Amendments to the 1972 Act have established increasingly stringent and complex water quality criteria for evaluating wastewater treatment discharges. Water quality criteria are based on an evaluation of the chemical, physical, and biological characteristics of pollutants and the use of best available technologies to treat those pollutants. The Water Quality Act of 1987 amends previous Clean Water Act water quality criteria by requiring the evaluation of toxic pollutants and the implementation of increased levels of treatment and water quality monitoring to reduce the concentration of toxics in wastewater discharges.

Federal treatment standards have applied primarily to "point-source" discharges of waste, such as wastewater treatment plants or any other directly identifiable discharge sources. Enforceable requirements for point-source discharges were set forth in the Clean Water Act.

The 1987 amendments establish new enforceable requirements for nonpoint source discharges. Nonpoint source discharges are defined by EPA as diffused or unconfined sources of pollution such as septic tanks and landfills. New funding eligibilities in the amendments for SRFs include nonpoint source control as well as sludge disposal, storm sewer projects and estuary protection projects. Under the 1987 Act, private entities are eligible for SRF funding to address nonpoint source and estuary protection projects.

¹ "Secondary treatment" is the minimum level of treatment that must be maintained by all treatment facilities except those granted ocean discharge waivers under the Clean Water Act. Secondary treatment is not a technology-based standard; rather, secondary treatment is evaluated in terms of the level of conventional pollutants in the wastewater being discharged by a facility. Secondary treatment requires an 85-percent reduction in conventional pollutant concentration in the wastewater treated by a facility.

EPA Needs Survey Data

The Environmental Protection Agency is required by the Clean Water Act to conduct a national survey of POTWs every two years to assess the capital investment needed to build or improve municipal wastewater treatment facilities in order to meet Clean Water Act standards. Needs data collection thus reflects Clean Water Act regulatory and funding priorities.

The biennial EPA Needs Survey provides detailed information on the compliance status and needs of the nation's POTWs. The survey, submitted as a report to Congress, enables policymakers to assess the impact of Clean Water Act requirements on the POTWs and the effectiveness of the Construction Grants program in meeting POTW facility needs. Survey data serve as a basis for congressional allocation of funds for the Construction Grants program. Each state's share of the national appropriation is based on the ratio between the state's estimated facility needs to the nation's overall facility needs as documented in the EPA Needs Survey.

Needs Survey data are submitted to EPA by states and regional EPA offices. Wastewater data include estimated compliance costs for specific projects. The needs data contained in the Needs Survey are much more detailed than federal water system data since the Safe Drinking Water Act has never included a funding program for drinking water compliance projects.

A *need*, as defined in the EPA Needs Survey, is the capital cost estimate for building a POTW that may be eligible for Construction Grants assistance as defined by the Clean Water Act. Needs estimates are separated by type of facility project as follows:²

Category I:	Secondary Treatment
Category II:	Advanced Treatment
Category IIIA:	Infiltration/Inflow Correction
Category IIIB:	Replacement/Rehabilitation of Sewers
Category IVA:	New Collector Sewers
Category IVB:	New Interceptor Sewers
Category V:	Combined Sewer Overflows

EPA has established criteria for needs estimates in an effort to ensure that Needs Survey information is as accurate as possible. The Survey contains data only on the capital investment required to build or improve

² Definitions for these terms are provided in the Glossary.

municipal wastewater treatment facilities. EPA's 17 documentation criteria for needs estimates include: evidence of a public health or water quality problem; evidence that needs address a current problem; evidence that needs are project-specific; and verification of the accuracy of cost estimates. The most common form of needs documentation accepted by EPA is a facilities plan, a study which includes an assessment of facility needs, cost estimates of alternatives that address facility needs, and a detailed description of the treatment works that will be designed to meet federal standards.

Shortcomings of EPA Needs Survey Data

Responding to shortcomings in EPA's survey methodology and data, many states have voluntarily submitted separate needs estimates concerning facilities that did not meet EPA's documentation criteria for the 1986 and 1988 Needs Surveys. Thirty-nine states submitted separate estimates in 1988 showing that an additional \$15 billion is needed to underwrite wastewater facility projects. Although no specific dollar amount was broken out for rural facility needs, they account for a large share of the undocumented needs reported in the separate state estimates.

Some states assert that EPA needs documentation criteria favor larger municipalities with technical staff and organizational capability. Because rural communities frequently lack technical studies and other needs documentation, rural facility needs are not accurately represented in the EPA Needs Survey. SRF staff say that Survey documentation does not reflect the magnitude of need for sewage collection and treatment facilities in unsewered areas, but provides more comprehensive needs data for rural communities that are currently served by municipal facilities.

Facility needs of private entities are not included in the Needs Survey because such entities have not been eligible for Construction Grants assistance. For example, the Survey excludes the needs of privately owned facilities and other non-municipal entities such as trailer parks and subdivisions. The 1988 Needs Survey did not include private facility needs, although private entities are eligible for nonpoint source control SRF funding under the 1987 Water Quality Act. Without data on private entity needs, it is unlikely that rural residents living in trailer parks or private subdivisions currently served by inadequate wastewater treatment facilities will receive Clean Water Act funding for facility improvements.

Needs Survey estimates do not include ineligible Construction Grants costs such as operation and maintenance or new funding eligibilities in the 1987 amendments. For example, estimates for house connections to sewers, nonpoint source control, and storm sewers are not included in the 1988 Needs Survey.

EPA Needs Survey estimates also do not specify whether facilities serve rural or urban populations, nor does the Survey provide information on the socioeconomic characteristics of the facility service population. Regulators cannot tell from looking at Needs Survey data whether a particular facility has the capacity — including the management capacity — to meet the needs of the population it serves.

Wastewater Treatment Facility Characteristics

In 1980, an estimated 2.3 million year-round homes in the United States lacked complete plumbing facilities.³ Seven percent of households located in rural communities were without complete plumbing, compared to 1.9 percent of the nation's urban households.⁴

More than 90 percent of the U.S. population is served by individual systems or community facilities that collect and treat domestic household wastewater. The quality of treated wastewater varies, depending on the type of treatment used, facility installation and facility operation and management.

Individual systems such as septic systems are usually located on the homeowner's lot and are referred to as "on-site" systems. Most are located underground. Soil provides a natural medium for storage and treatment of discharged waste. Individual wastewater treatment systems are the rule rather than the exception in many nonmetropolitan areas both because the land is available and because the cost of constructing and maintaining integrated facilities to serve widely dispersed populations can be prohibitive.

According to the 1988 EPA Needs Survey, \$61.6 billion is required to bring existing and planned facilities serving the current population in the U.S. and its territories into compliance with current federal standards. This needs estimate represents a backlog in capital financing necessary to bring all documented facility needs into compliance with federal standards. The three wastewater project components that comprise the largest share of the national facility backlog are:

Wastewater Component	Cost Backlog	Share of Need
Secondary Treatment Plants	\$18.8 billion	30.5 %
Combined Sewer Overflows	\$14.6 billion	24.0 %
New Collector Sewers	\$ 9.5 billion	15.5 %

³ U.S. Department of Commerce, Bureau of the Census, *1980 Census of Housing*, volume 1, chapter B.

⁴ *Ibid.*

In dollar terms, facility needs backlogs are generally concentrated in the most populous states, e.g., California, New York, Texas, and Florida. The northeast census region accounts for the greatest overall share of national backlog. The region accounts for the highest share of Combined Sewer Overflows (CSO) needs nationally — 37 percent — which contributes to the region's significant capital financing needs. Less populated rural states have lower backlogs in dollar terms.

There are 19,755 currently operating wastewater facilities in the U.S. This number is projected to increase by about 22 percent — to a total of 24,141 facilities in operation nationwide — when all documented facility needs are met. More than 90 percent of all operating facilities serve populations of fewer than 10,000 persons. They are referred to as "minor" facilities. Major facilities account for only 1,271 of the currently operating wastewater facilities.

EPA Needs Survey data show that only 8 percent of the currently operating treatment facilities are not meeting secondary treatment standards, and only .5 percent are discharging raw (untreated) sewage. However, 20 percent of all facilities are not in compliance with discharge permit standards, meaning that even if treatment facilities are in place, the quality of effluent discharged does not meet federal standards. In some cases, poor treatment plant operations may be the cause of noncompliance.

Rural Wastewater Facility Needs

I. Individual Facility Characteristics

As noted previously, individual on-site wastewater treatment facilities provide wastewater treatment to many households located in rural and suburban areas. The number of on-site systems in use in the U.S. is not documented. Until the 1987 amendments, Clean Water Act regulations did not focus explicitly on individual facility needs. Regulation of on-site system installation and performance has been the purview of state, county and local governments. The level of oversight and enforcement varies greatly. Many unincorporated areas lack standards for individual facilities.

Septic systems are an appropriate wastewater treatment method in areas with sufficient land, good drainage and appropriate topography. Unfortunately, many septic systems are improperly designed, sited and installed because local governments fail to set or enforce standards. County officials in some areas are so overwhelmed with other public health responsibilities that they are simply unable to oversee installation of septic systems, enforce codes, or respond when systems fail.

Not surprisingly, the EPA Needs Survey confirms that use of on-site systems is predominant in rural communities, the location of 92.6 percent of all identified on-site system needs nationwide. On-site systems account for 28 percent of all currently operating facilities located in rural communities, compared to 23 percent of all currently operating facilities nationwide.

Figure 1. Current Status of Wastewater Facilities.

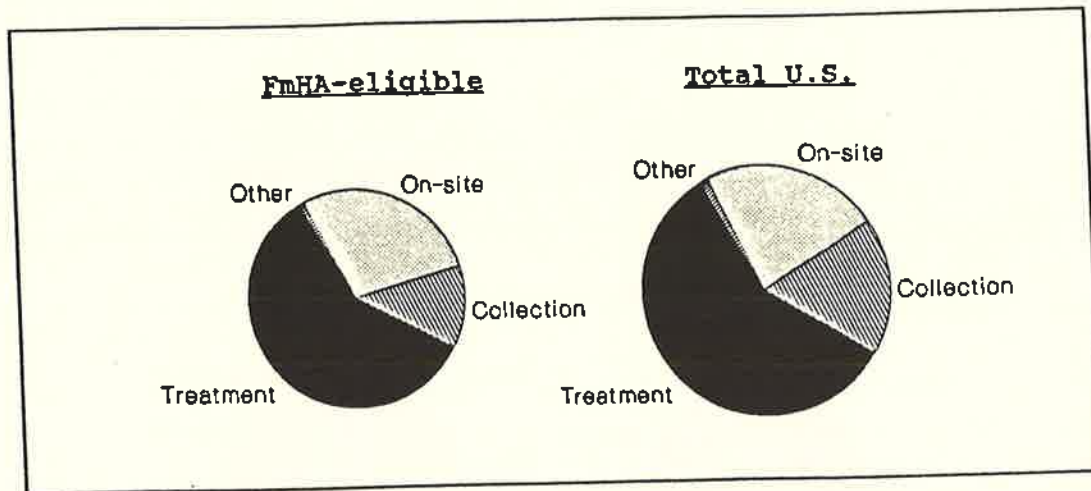


Table 1. Nature of Wastewater Facility in 1988.

Facility Type	(number)	
	FmHA	National
Treatment	10,876	14,039
On-site disposal	5,164	5,573
Collection	2,257	4,247
Other	150	292
Total	18,437	24,141

Source: *Assessment of Wastewater Treatment Facilities in Small Communities*, Barry Ryan, Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture, Staff Report AGES9140, August 1991.

Thirty-two percent of the 10,083 facilities currently operating in nonmetropolitan counties⁵ are on-site systems. Facility needs estimates show

⁵Data on wastewater facility needs in nonmetropolitan and poor nonmetropolitan counties were obtained by cross-referencing 1988 EPA Needs Survey data with 1987 City and County Databook data. The methodology used for county analysis is explained in further detail in the following section.

that 70 percent of all on-site systems in nonmetropolitan counties must be replaced with centralized or noncentralized (depending on the technology used) treatment systems to meet federal standards.

The need to expand or provide new service to currently unsewered households is greatest in nonmetropolitan and poor nonmetropolitan counties. EPA Needs Survey data confirm the need for a 71-percent increase in the number of sewage collection systems in nonmetropolitan and poor nonmetropolitan counties, compared to 41 percent nationally.

Figure 2. Proposed Changes to Wastewater Facilities.

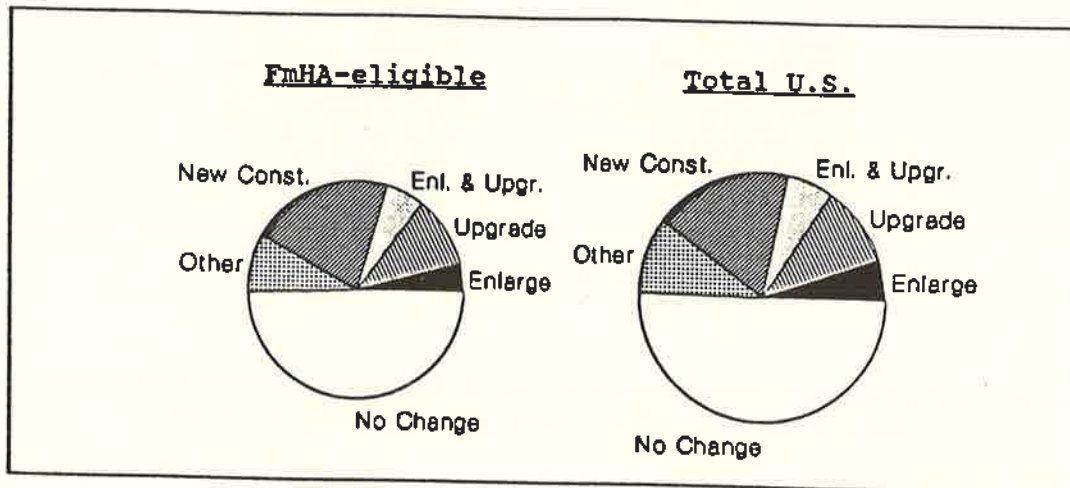


Table 2. Nature of Wastewater Facility Changes.

Facility Change	(number)	
	FmHA	National
No Change	9,128	12,116
New Construction	3,933	4,376
Upgrade	1,944	2,517
Other	1,600	2,983
Enlarge & Upgrade	1,063	1,464
Enlarge	769	1,270
Total	18,437	24,141

Separate state needs estimates supplementing the 1988 Needs Survey⁶ show that there is a pressing need to replace individual facilities in rural communities with new or expanded sewage collection and treatment facilities. Quantifying this need nationwide is difficult, because uniform data on septic system performance and on water quality problems associated with malfunctioning individual systems is not available on a nationwide basis.

Some federal, state and county agencies, including the USDA Cooperative Extension Service, collect information on septic system performance, but data is not maintained with any uniformity. Little documentation is available on the incidence of well contamination from septic systems, for example, even though many rural residents avoid drinking well water because of septic problems.

Eighty-nine percent of all SRF survey respondents representing 40 states report that use of failing individual wastewater systems is a persistent compliance problem, primarily in rural, low-income communities. While SRF staff report that some individual systems may be replaceable with adequate individual systems, this is not feasible in some rural areas because of poor soils and unsuitable hydrologic conditions. More than one-third of all SRF survey respondents report that there is a pressing need to construct new community wastewater collection and treatment facilities in small, rural and low-income communities to replace failing on-site systems.

For example, Pennsylvania Department of Environmental Resources staff provided a specific estimate of \$135 million to address on-site rural facility problems, with \$1.72 billion needed for small facility needs and \$1.3 billion for urban facility needs.

SRF staff explain that many unsewered communities have been unable to obtain affordable financing to develop needed collection and treatment facilities because of high capital costs, small low-income user populations and competition for grants and low-interest loans. Staff report, however, that most larger and medium-sized communities were able to construct municipal wastewater facilities with Construction Grants assistance.

II. Nonmetropolitan Community Facility Characteristics

The 1988 EPA Needs Survey shows that, when documented facility needs are met, there will be 18,000 wastewater treatment facilities located in

⁶ U.S. Environmental Protection Agency, Office of Municipal Pollution Control, *1988 EPA Needs Survey Report to Congress: Assessment of Needed Publicly Owned Wastewater Treatment Facilities in the United States*, February 1989.

rural communities with populations of 10,000 or fewer. Identified rural facility needs represent three-quarters of the 24,141 planned and operative POTWs nationwide⁷.

According to the 1988 EPA Needs Survey, current facility needs in rural communities with fewer than 10,000 persons total \$13.7 billion, a quarter of the national needs estimate. Construction or expansion of wastewater treatment facilities to meet federal standards represents the largest share of the rural facility needs estimate.

Figure 3. Total backlog by census region - FmHA and National.

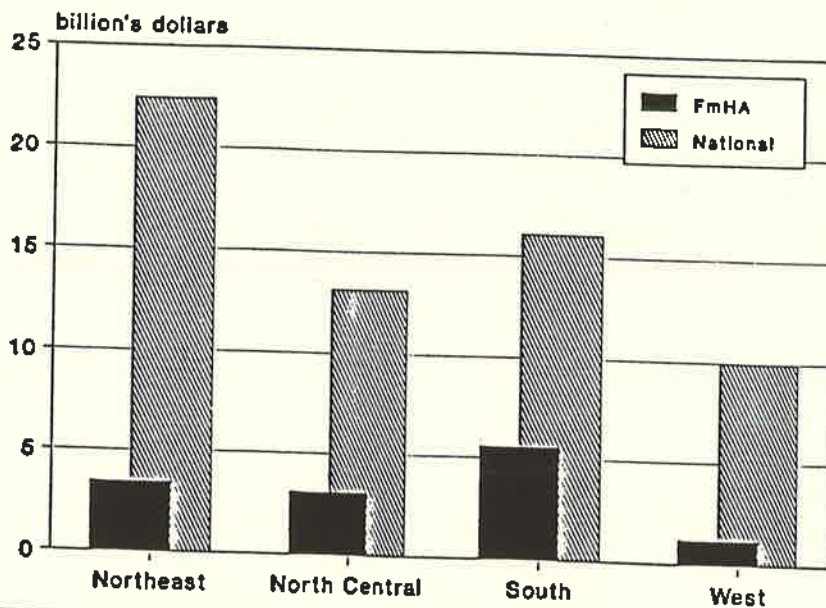


Table 3. Wastewater Spending Backlog 1988 (million's 1988 \$)

FmHA	U.S.	NE	NC	So	W	Terr.
Core system *	8,390	2,011	1,983	3,294	822	280
Total Backlog	13,673	3,435	3,094	5,557	1,190	397
National						
Core system *	34,798	9,694	6,969	10,945	6,317	873
Total Backlog	62,922	22,391	13,140	16,066	10,003	1,321

* - Costs associated with needs categories I, II, IIIa, IV. Total backlogs include category V. - Combined Sewer Overflow.

⁷ Data on rural community facility needs was prepared by Barry Ryan for the Farmers Home Administration in April 1990. FmHA field staff reviewed 1988 EPA Needs Survey data and identified facilities located in communities with fewer than 10,000 persons.

Facility needs backlogs in nonmetropolitan counties⁸ total \$7.86 billion, one-eighth of the national cost estimate for capital projects that have yet to be completed to meet current federal standards. The composition of wastewater projects required for federal compliance in nonmetropolitan counties presents a different breakdown than do national facility needs. Facility components in nonmetropolitan counties include:

Wastewater Component	Cost Backlog	Share of Need
Secondary treatment Plants	\$ 2.9 billion	39 %
New Collector Sewers	\$ 2.03 billion	26 %
New Interceptor Sewers	\$ 1.3 billion	16.5 %

CSO projects are predominantly an urban need, given that CSOs account for only one percent of nonmetropolitan county facility needs.

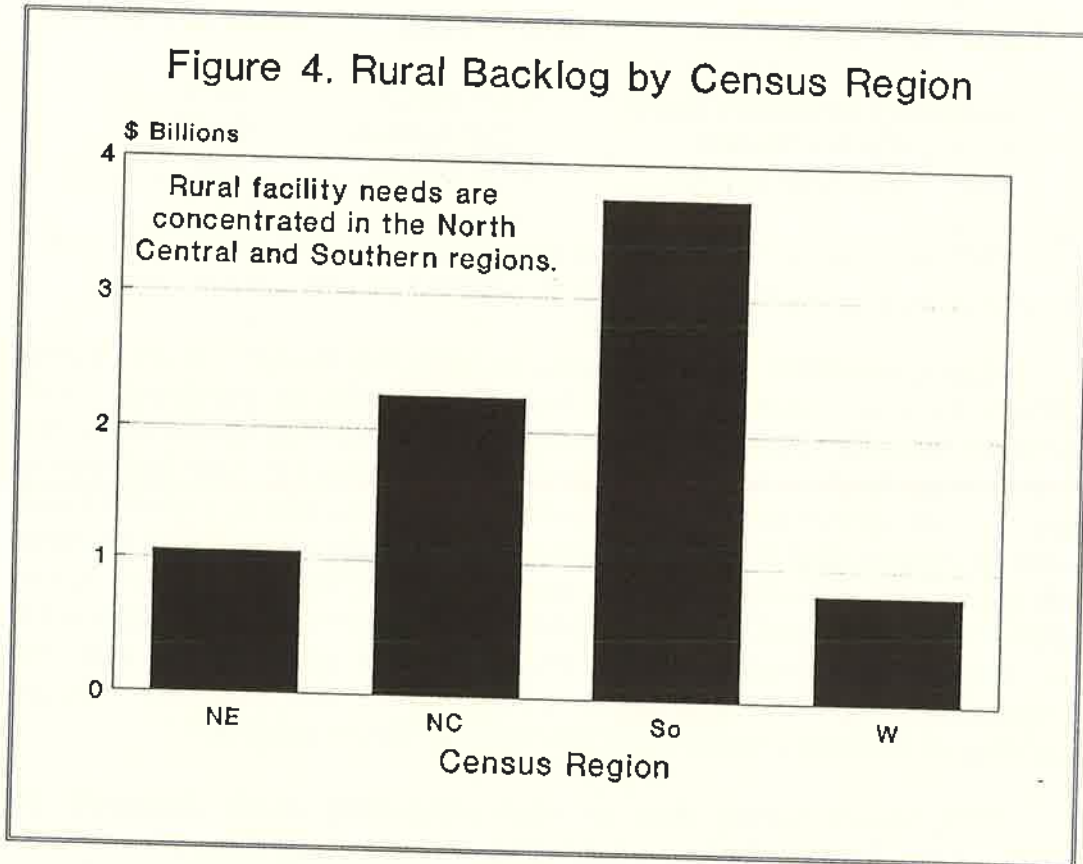
Nonmetropolitan backlog figures indicate that a higher share of rural facilities have not met secondary treatment standards compared to all facilities nationally. In addition, nonmetropolitan backlog figures show that in rural areas there is a greater overall need to develop new facilities or expand sewer service to currently unserved areas. In contrast, national needs backlogs suggest that there is a greater need to upgrade existing facilities, with less need to provide new sewer service. The higher overall share of new collector and interceptor sewers as a portion of nonmetropolitan facility needs may also be attributed to: 1) the higher cost of collectors as a project component in sparsely populated areas, and 2) the restricted funding eligibility of collectors under the Construction Grants program.

EPA Needs Survey data on rural community needs document the pressing need for new facility construction in nonmetropolitan areas. Rural community facility needs account for 90 percent of all proposed new construction (building on a site where no municipal facility currently exists) activity nationwide. Some \$8.4 billion of \$13.7 billion in rural community facility needs is for interceptors, infiltration/inflow and sewage treatment plants⁹, core system components that are typically needed where no treatment system may yet exist.

⁸ Nonmetropolitan counties are defined as all non-Metropolitan Statistical Area (MSA) counties in the U.S., using 1980 U.S. census data. Using this definition, there are 2,388 nonmetropolitan counties in the U.S., representing 77 percent of all counties nationwide. Facility needs were identified in all nonmetropolitan counties using the 1988 EPA Needs Survey and this listing of nonmetropolitan counties. Nonmetropolitan facility needs data provide information on facilities located in nonmetropolitan counties.

⁹ Ibid.

Nonmetropolitan facility needs account for the majority of all needs in both the southern and north-central census regions, where relatively few metropolitan areas are located. Nonmetropolitan needs account for 59 percent of total facility backlog in the southern census region and 68 percent of all facility needs backlog in the north-central census region.



In the following states, facility needs in nonmetropolitan counties account for more than 40 percent of total state facility needs: Maine, Iowa, North Dakota, South Dakota, Arkansas, Delaware, Kentucky, Mississippi, North Carolina, West Virginia, Alaska, Hawaii, Idaho, Montana, Wyoming.

New collector sewer and new interceptor sewer projects represent a larger share of overall facility cost estimates in nonmetropolitan counties than in all counties nationwide. The greatest share of new facility cost estimates among nonmetropolitan counties is concentrated in the southern census region, where collectors and interceptors account for more than half of total cost estimates for compliance projects. Such facility backlogs support the contention that many rural areas have yet to develop sewer facilities, perhaps because these communities could not gain EPA Construction Grants priority

or because they could not afford the high cost of collectors, a restricted cost under the Construction Grants program.

Figure 5. Total Backlog in Rural Southern Census Region

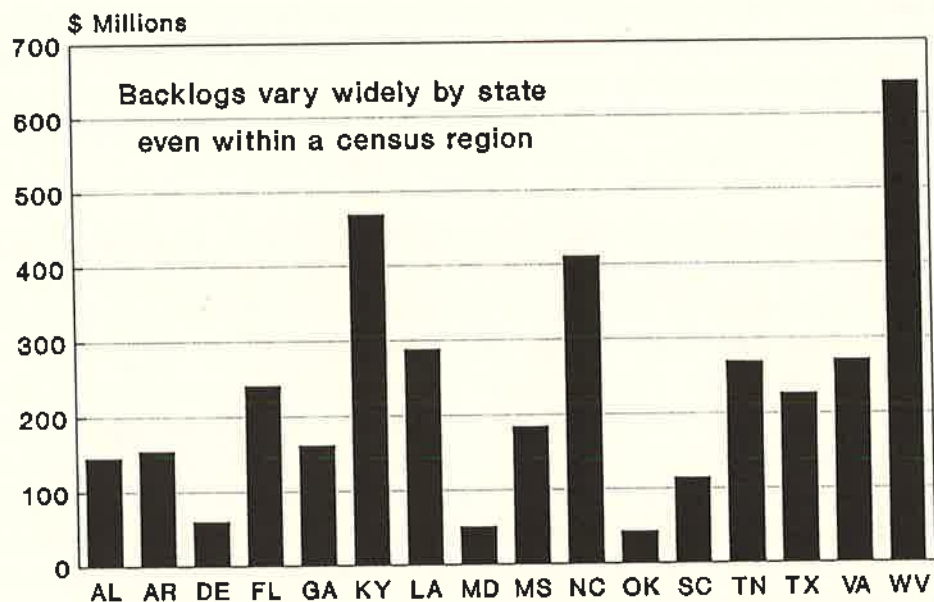
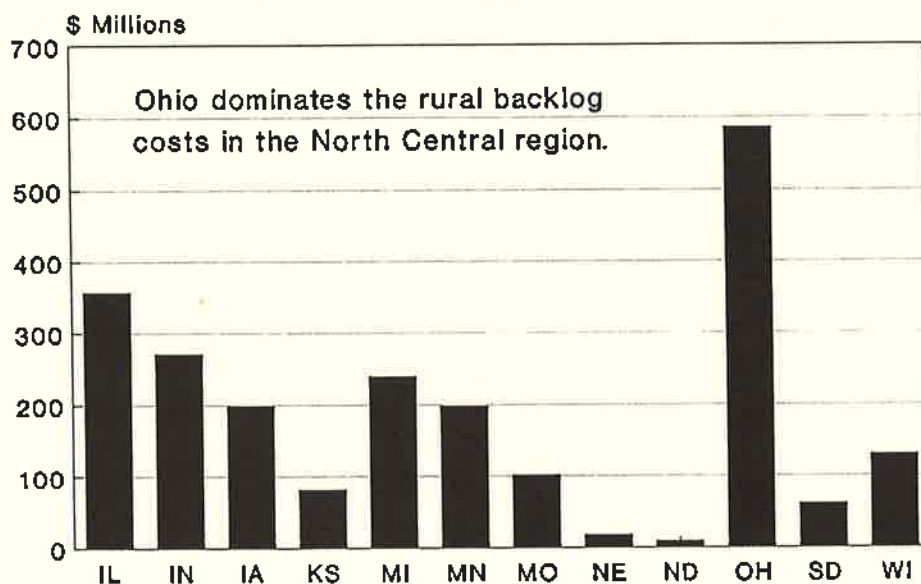
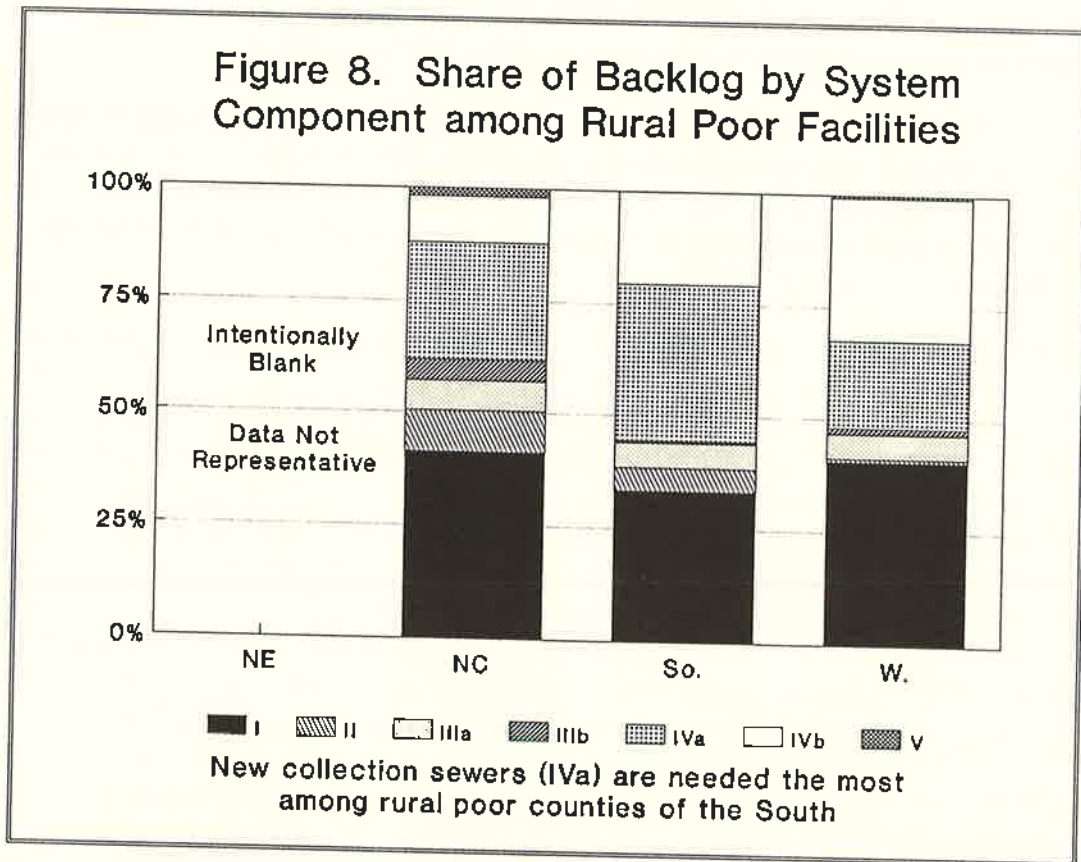


Figure 6. Total Backlog in Rural North Central Census Region



steep terrain and shallow soils. For example, state environmental agency staff in West Virginia say that cost estimates for developing new collector systems are among the highest in the nation because of geographic characteristics.



When comparing rural and rural poor county facility data to national data, it appears that nonmetropolitan areas are more likely to be the location of nonexistent or inadequate existing facilities than are urban areas. This corroborates reports by state environmental agency staff that rural and lower income areas are most frequently the location of currently unsewered areas that need new service.

Compliance with Federal Standards

1988 EPA Needs Survey data may be used to assess whether existing facilities are in compliance with federal discharge permit standards and whether facilities are providing the level of treatment required by the federal Clean Water Act. Data show that facilities located in rural and rural poor counties account for the highest incidence of noncompliance with discharge permit standards. Further, a greater share of facilities located in rural and rural poor counties are not currently meeting secondary treatment levels as

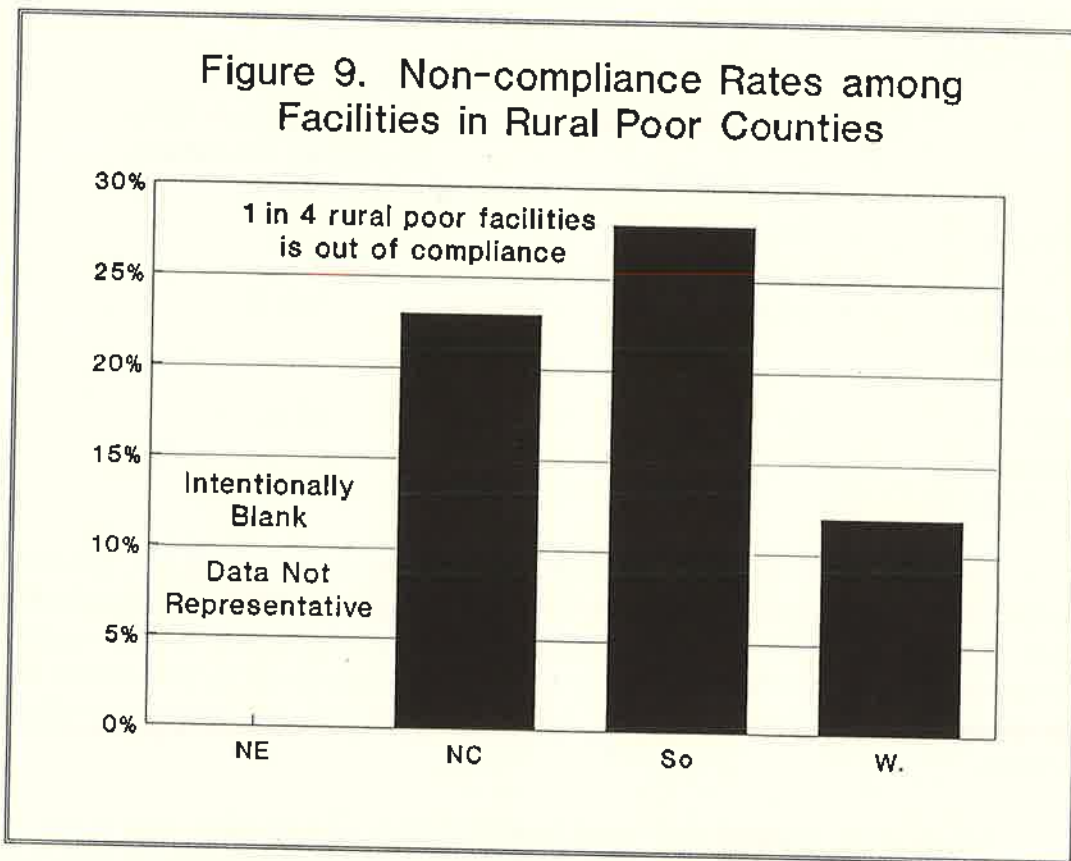
required by the federal Act, compared to treatment levels of facilities nationwide.

	Rate of Noncompliance	Share with less than secondary treatment
National	20.5 %	8 %
Nonmetro Counties	24 %	10.5 %
Poor Nonmetro Counties	23 %	12 %

Facilities located in nonmetropolitan counties represent the greatest share of facilities that do not meet federal discharge and treatment standards. More than 60 percent of all noncomplying facilities in the U.S. are located in nonmetropolitan counties, and more than 67 percent of all facilities that are not meeting secondary treatment levels are located in nonmetropolitan counties.

These data suggest that rural facilities typically involve two types of facility needs: 1) rural facilities may be served by treatment systems but may be violating discharge standards because of inadequate operation and maintenance, and 2) rural facilities may need to construct treatment systems to meet federal permit standards. Unfortunately, noncompliance data do not allow analysts to distinguish between the need for management improvements and physical plant improvements.

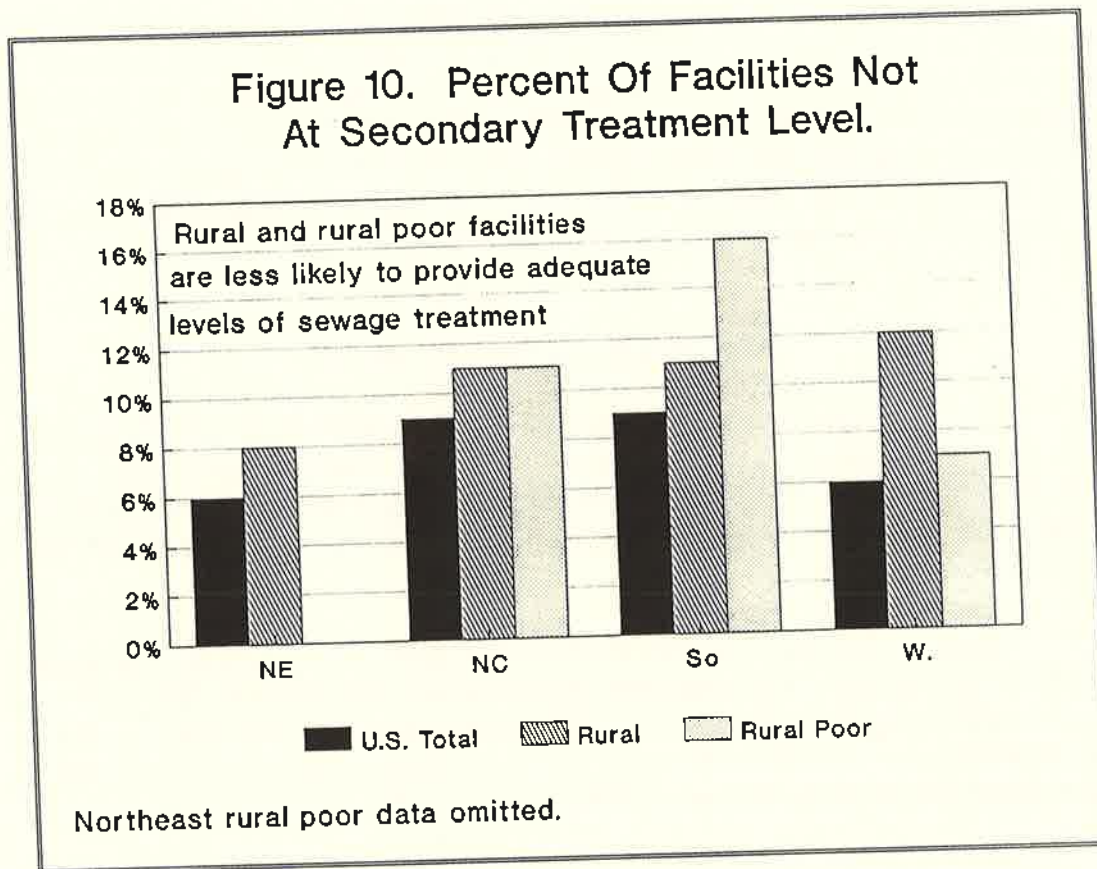
The highest incidence of noncompliance with discharge permit standards — a 29-percent noncompliance rate — is found among facilities located in rural poor counties in the southern census region. While facilities in the southern census region total 36 percent of all facilities in rural poor counties, such facilities account for 44 percent of all noncompliance among rural poor facilities nationwide.



Rural facility noncompliance is concentrated in some states. For example, more than half of all rural facilities in Arkansas were in noncompliance in 1988. The noncompliance rate is even more dramatic among facilities located in Arkansas's rural poor counties; 81 percent experienced permit violations in 1988. In Tennessee, more than half of all facilities in rural and rural poor counties were in noncompliance in 1988.

The concentration of noncompliance may be the result of poor plant construction, stringent state monitoring or other factors. In states with high rates of noncompliance, the causes of noncompliance should be explored to better enable state agencies to develop strategies to address facility needs, within the limitations of state administrative capacity.

Facilities located in nonmetropolitan counties also account for the greatest share of facilities that are not meeting secondary treatment levels. Such data parallels facility cost estimate data which shows a higher overall share of need for secondary treatment facilities among facilities located in nonmetropolitan facility counties.



EPA Needs Survey data show that facilities located in the southern and north-central census regions most frequently lack secondary treatment, in both nonmetropolitan and poor nonmetropolitan counties. Facilities located in rural poor counties in the two regions account for the greatest share of facilities without secondary treatment in the nation. Facilities in rural poor counties in the southern census region represent the greatest share of facilities with inadequate treatment levels, some 16 percent of all facilities.

In the southern and north-central census regions, facilities located in both rural and rural poor counties account for the highest national incidence of facilities lacking secondary treatment: Iowa: 30 percent; South Dakota: 30 percent; Arkansas: 90 percent; Mississippi: 36 percent; Louisiana: 22 percent.

That noncompliance and inadequate treatment among rural and rural poor facilities is concentrated among facilities located in the southern census region, and to a lesser degree in the north-central census region, suggests that facility needs in these states should be carefully evaluated. It is possible that state Construction Grant allocations have been insufficient to enable rural and rural low-income communities to develop required treatment facilities. In addition, it appears likely that facilities located in rural and rural poor areas

are not being adequately operated and managed, perhaps contributing to their inability to gain access to capital financing. Whether additional financial or technical assistance is needed in these regions is dependent on the causes of noncompliance. However, with the highest incidence of violations among rural poor facilities, the data suggest that, ultimately, subsidies should be targeted to facilities located in rural poor counties in these states so that federal treatment standards may be achieved.

SRFs Report on Facility Needs

SRF staff representing 45 states provided supplemental information for this report on facility needs in small, rural and low-income communities. Needs data supplied by SRFs offer additional insight into the types of facility needs and the factors contributing to such needs in small, rural and low-income communities.

Some of the needs factors contained in this section will be considered by SRF staff when reviewing loan applications. Specifically, SRF staff will assess applicants' financial and organizational capability to determine whether applicants have the means to repay loans, implement facility improvements and maintain facilities that meet federal standards.

Small Facility Non-Compliance

SRF staff in 45 states ranked existing small system compliance problems in order of frequency (percentages shown in parentheses are the percentage of respondents that identified each problem):

- failing on-site septic systems (89%);
- poor operation and maintenance (78%);
- inadequate level of treatment (64%);
- infiltration/inflow (60%).

Finding: SRF responses confirm EPA Needs Survey findings that the use of inadequate on-site septic systems is prevalent among rural households. Individual systems need to be replaced by new municipal collection and treatment facilities.

Finding: SRF responses show that currently operating municipal facilities located in small communities are not being adequately operated or maintained, are not utilizing a sufficient level of wastewater treatment and are in poor condition.

Finding: SRFs report that noncompliance is prevalent among small facilities serving rural poor residents. Moreover, the lack of financial capability presents an obstacle to addressing rural poor facility needs.

Finding: Thirty-two states report that wastewater facility compliance problems are prevalent among facilities serving residents who can least afford to finance required facility improvements. Non-complying facilities typically serve a small, often rural, low-income customer base. SRF staff explain that limited revenue generating capability, poor financial management and little or no capital planning contribute to facility problems.

Finding: Rural poor facility noncompliance is often caused by poor operation and maintenance. In many cases, revenues from user fees do not cover the costs of facility maintenance, and facilities often do not employ trained operators. As a result, rural poor facilities may lack the capacity to maintain facility compliance. Thirty-five state SRF staff cited poor operation and maintenance as the cause of small, rural and rural poor facility non-compliance. "Operation and maintenance" (O&M) refers to both financial management and maintenance of physical plant and equipment.

SRF staff report that user rates charged among rural and rural poor facilities are often insufficient to cover operation and maintenance expenses. In Arkansas and Idaho, for example, SRF staff report that many smaller communities have not updated user rates in 20 years. Florida SRF staff have found that some systems serving low-income users are not solvent, and some smaller systems are borrowing to cover operation and maintenance costs. Some SRF staff suggest that local officials will face stiff opposition to user rate increases, particularly because rates have remained stable for so long.

In Tennessee, state regulatory staff found that 40 percent of community sewer systems were operating at a net loss or with a retained earnings deficit. Many facilities were charging user fees too low to cover the cost of equipment repair and replacement. In 1987, the state established a Wastewater Financing Board to enforce a state law requiring that sewer user charges cover depreciation as well as operation, maintenance and replacement. Tennessee SRF staff say that the financing review process will help facility managers to meet compliance requirements by ensuring that funds are available for needed repairs.

Many smaller facilities do not employ trained, full-time treatment plant operators. In some states, including Louisiana, facilities serving fewer than 500 persons are not required to employ full-time operators. California SRF staff report that inadequate facility operation and plant maintenance has contributed to the high rate of noncompliance among small facilities.

Noncompliance among rural poor county wastewater facilities may be tied to poor facility management, operation and maintenance. EPA and SRF staff report that rural facilities are, as a rule, less likely to have trained full-time operators. Although EPA Needs Survey data does not distinguish between operational and physical facility deficiencies, operational problems accounted for half of all discharge permit deficiencies documented in a 1980 report by the General Accounting Office.¹¹

Policy Implications of Needs Data

National EPA Needs Survey data alone cannot provide a comprehensive picture of rural facility needs because rural communities often lack sufficient documentation. However, the data clearly indicate that significant numbers of rural households rely on inadequate individual systems that threaten public health and water quality. The full extent of rural wastewater problems, particularly unsewered communities, is not represented in national needs estimates.

Policy Implications for States

Since the Clean Water Act allotment formula is based on EPA Needs Survey estimates, states with significant but undocumented rural facility needs will not receive funding at a level that reflects the level of need statewide. States may be constrained in their ability to target funds to address undocumented rural facility needs and may target funds to communities with the capacity to provide sufficient documentation.

In addition, the Clean Water Act allotment formula favors states with urban populations because of the high cost of urban facility projects. Large community needs account for a quarter of all documented facilities needs but represent three-quarters of facility cost estimates. In contrast, three-quarters of all wastewater facilities nationwide are located in rural communities, but facility needs estimates of rural communities account for only a quarter of national needs estimates. Because of this discrepancy, states that are primarily rural will receive smaller allotments than states with urban centers.

Policy Implications for Communities

EPA Needs Survey data show that many facilities located in rural and rural poor communities are not in compliance with Clean Water Act treatment standards and/or are not meeting discharge permit standards. The

¹¹ U.S. General Accounting Office, *Costly Wastewater Treatment Plants Fail to Perform as Expected*, Washington, D.C., 1980.

high rate of noncompliance among rural facilities is attributed to the limited financial and management capability of such facilities. User charges are typically insufficient and do not cover operating expenses, and many rural poor facilities do not employ trained or full-time operator staff.

SRF staff report that many rural poor facilities must undertake capital improvements to meet compliance standards. However, SRF staff note that numerous rural poor communities could not afford the local-share costs of capital projects under the Construction Grants program; they predict that if such grants are not forthcoming, many if not most rural poor communities will be unable to afford the costs of capital projects. Such communities may not be able to address facility needs with SRF loans unless loan terms are based on ability to pay. Some rural poor communities will need supplemental grants to meet compliance requirements.

Operation and management deficiencies among rural poor facilities also contribute to non-compliance rates. EPA Needs Survey estimates do not include O&M costs since they are not eligible for assistance under the Construction Grants program. SRF staff report, however, that O&M budgets will be reviewed to determine whether applicants will adequately maintain facilities and can generate sufficient revenues to repair and replace equipment. Some rural poor communities may not be able to receive SRF loans if they cannot demonstrate that revenues will cover O&M costs.

The wastewater treatment facility needs of low-income rural communities thus constitute a vicious cycle:

- Because needs are not fully documented, funds will not be forthcoming to address such needs;
- Noncompliance problems are, in large measure, the result of limited financial capability — but few systems can afford to borrow to finance capital projects; and
- Inadequate operation and maintenance practices contribute to noncompliance problems, but because the costs of operation and maintenance are not captured in the EPA Needs Survey, facilities must seek to cover operation and maintenance costs by increasing user fees — a difficult task for facilities that primarily serve low-income households.

CHAPTER 2

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RURAL WATER AND SEWER FUNDING RESOURCES

Since 1981 there has been a significant, continuing shift from federal to state and local funding of rural facilities — with a marked drop in total funds available.

Introduction

FEW FEDERAL OR STATE funding programs target the water and sewer needs of rural low-income communities. Funding allocations have typically been distributed primarily on the basis of population size and impact on environmental quality rather than financial need. Some programs are aimed at alleviating compliance problems, but there appears to be a trend toward awarding funds to facilities with good system management capabilities rather than to those with a record of compliance difficulties. Moreover, most federal funds have been invested in "hard costs" such as facility construction projects; only a relatively small fraction of federal funding has been allocated for "soft costs" such as management and technical assistance.

Although rural and small communities are expected to experience the greatest increases in water and sewer costs as a result of having to meet the requirements of the Safe Drinking Water and Clean Water Act amendments, indications are that they will not receive a commensurate level of assistance. As a result, there is a risk that compliance orders and fines of up to \$25,000 per day¹ may be levied against numerous rural and small systems that do not have the resources to correct their facilities' problems.

¹ The 1986 Safe Drinking Water Act amendments authorize civil penalties not to exceed \$25,000 for each day in which SDWA violations occur if violations persist beyond the thirtieth day after the Administrator has notified the system in accordance with SDWA requirements. The Water Quality Act of 1987 specifies fines ranging from \$2,500 to a maximum of \$50,000 total for federal violations, depending on type and cause of violation.

This chapter offers a brief overview of federal infrastructure funding; rural and urban facility funding distribution in the Environmental Protection Agency's Construction Grants Program, federally capitalized state revolving funds (SRFs) for wastewater treatment projects, and the Farmers Home Administration's Water and Waste Disposal Loan and Grant program; and the role of state bond banks, to determine whether access to tax-exempt financing can fill gaps in the financing of rural low-income community wastewater facilities.

Federal Funding Resources

The EPA Construction Grants program, authorized under the 1972 Clean Water Act amendments, ranks as the second largest federal domestic infrastructure funding program in the nation, with more than \$44.6 billion invested in publicly owned wastewater treatment works (POTWs) between 1972 and 1982.² Funding priority under the Clean Water Act directed Construction Grants assistance to projects that achieve the most significant impact on water quality by bringing treatment facilities into compliance with federal standards. As a result, communities with large populations generating greater volumes of wastewater flow have been the primary beneficiaries of Construction Grants funding.

Federal funding for drinking water projects has never been authorized within the framework of Safe Drinking Water Act regulation.

The Consolidated Farm and Rural Development Acts of 1961 and 1972 authorized the Farmers Home Administration (FmHA) to administer a national funding program for rural water and sewer projects to help foster community development in rural and rural poor areas. FmHA issued more than \$9.5 billion in loans and \$3 billion in grants between 1972 and 1987, with more than half of all funds obligated for drinking water projects. FmHA water and sewer loans and grants are directed to rural communities that face obstacles obtaining safe water or sewer service because of limited financial capability. FmHA evaluates community need in terms of median income, community size, severity of water or sewer problem and other needs factors.

Housing and Urban Development (HUD) Community Development Block Grants (CDBG), Economic Development Administration grants and Appalachian Regional Commission grants and loans have provided critically needed supplemental water and sewer project financing. All three programs target funds for water and sewer projects to meet community and economic

² Richard Worden and Chantale Wong, "Financing the Next Generation of Pollution Control: State Revolving Loan Program," (Unpublished paper), 1988.

development needs in economically distressed areas. In some cases, they have supplied local share monies to rural low-income facilities, reducing debt-service obligations and enabling communities to construct needed facilities. (The importance of these supplemental sources is highlighted in the state case studies — see *Appendix A*.)

Reductions in Federal Public Works Spending

Since 1981, there have been significant reductions in federal wastewater facility financing. Between 1981 and 1987, total EPA Construction Grant program funding declined by 56 percent, and EPA construction expenditures in rural communities declined by 91 percent in real terms, from \$1.7 billion to \$149 million.³

EPA's share of spending on all environmental quality projects is projected to drop from 13 percent to 8 percent between 1987 and 2000.⁴ This decline is largely the result of the 1987 Clean Water Act authorizing the phasing-out of the EPA Construction Grants program. The level of EPA Construction Grants funding is projected to decline from \$1.2 billion in FY 1989 to zero in FY 1991.

FmHA water and sewer funding declined by 31.5 percent in constant 1991 dollars terms between 1982 and 1989, from \$515.2 million in direct loans and \$183.3 million in grants to \$359.4 million and \$119 million, respectively. However, the trend in FmHA water and sewer funding level declines has recently changed; funding allocations increased in FY 1990 and FY 1991. FmHA loans totalling \$550 million and grants totalling \$309 million are appropriated for FY 1991.

Increased State and Local Role

Since 1980, the federal government has delegated considerable enforcement and funding responsibility to state and local governments. They, in turn, have turned to the municipal bond market, user fees and tax assessments to meet costs. Individual households have borne a growing share of the cost of environmental services in user charges and tax assessments to repay debt and cover the costs of capital construction projects and

³ Information obtained from EPA Municipal Construction Division in 1989, based on Grants Information Control System data.

⁴ U.S. Environmental Protection Agency, Administration and Resources Management, *Preliminary Analysis of the Public Costs of Environmental Protection: 1981—2000*, 1990.

operation and maintenance. The trend toward increased state and local responsibility is projected to accelerate in the 1990s.

The state and local share of total capital public works financing increased from 39.9 percent to 59.2 percent between 1979 and 1988.⁵ States and local governments are, as noted, assuming a greater share of public works costs as federal contributions decline; in 1988, state and local government outlays for infrastructure projects amounted to \$38 billion while federal outlays totalled \$26.2 billion.⁶

The transition to state revolving funds, slated to replace Construction Grants as a permanent source of wastewater treatment project financing, is the clearest illustration of the shift to increasing state responsibility. Under the Water Quality Act of 1987, states must operate self-sustaining loan funds that provide a permanent source of wastewater facility financing to help municipalities comply with federal treatment standards. It is unlikely that state revolving funds can provide the same level of wastewater project financing that was provided in Construction Grants, although many states are expected to reinvest or leverage additional bond monies to increase the volume of loan funds.

At the same time that states and local governments are meeting a greater share of capital costs, they are also facing significant increases in administrative costs as a result of emerging environmental regulations. State administrative costs will increase as the number of regulatory requirements increase and as standards become more complex. EPA estimates that in 1995 the states will need an additional \$309 million to administer drinking water and wastewater programs, and that by the year 2000 they will need to spend more than twice the amount spent in 1987 to administer water programs authorized under the Safe Drinking Water Act and subsequent amendments.⁷

Infrastructure funding will clearly become more politically charged as state governments seek support for bond referenda, tax increases, and legislative appropriations. Participation of urban centers may be critical to help states attract private investors and ensure voter approval. State

⁵ U.S. Congress, Office of Technology Assessment, *Rebuilding the Foundations: A Special Report on State and Local Public Works Financing and Management*, OTA-SET-447 (Washington, D.C.; U.S. Government Printing Office, March 1990).

⁶ *Ibid.*

⁷ *State Funding Study, Details of State Needs, Funding, Funding Gap*, U.S. Environmental Protection Agency (August 8, 1988). Trends derived in publication: *Preliminary Analysis of the Public Costs of Environmental Protection: 1988—2000*, U.S. Environmental Protection Agency, Administration and Resources Management.

legislatures may respond to pressures from metropolitan areas by subsidizing costly projects to replace decaying infrastructure and upgrade existing facilities rather than addressing the needs of less populated — and less politically influential — rural areas.

Local Government Expenditures

The local share of public works spending is projected to increase significantly as a result of shifting federal investments and escalating costs associated with environmental compliance. EPA projects that additional demands for capital imposed by new environmental regulations could add more than \$3 billion annually by the year 2000, while the cost of maintaining current levels of environmental quality is projected to double from \$8 to \$16 billion annually. Local spending accounted for \$26 billion, or 76 percent, of the public share of environmental costs in 1981. Localities are expected to cover 87 percent of public costs for environmental protection by the year 2000, spending more than \$48 billion just to maintain 1987 levels of environmental quality.⁸

Debt financing is becoming the predominant financing mechanism for water and sewer projects. Local governments may currently borrow to finance capital projects from federally capitalized state revolving funds, state bond banks, and financing authorities. Municipal bonds have been increasingly used to finance wastewater facility projects as the federal share of Construction Grants declined in the 1980s. From 1980 to 1984, Construction Grants financed roughly half of all wastewater facilities, averaging \$3.9 billion annually, and municipal bonds provided an average of \$2.3 billion annually for wastewater projects during this time period.

State bond banks and tax-exempt financing have historically provided many small communities with credit support and funding access. In 1987, 60 percent of state and local infrastructure capital came from bonds.⁹ However, federal tax-reform legislation in 1986 and 1988 made the issuing of tax-exempt bonds more difficult. The legislation created additional qualification procedures, reporting requirements, and other restrictions that are likely to have a disproportional impact on small issuers, such as rural facilities. In addition, predominantly rural states tend to have lower bond ratings than

⁸ U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation, *Municipalities, Small Business, and Agriculture: The Challenge of Meeting Environmental Responsibilities*, 1988.

⁹ U.S. Congress, Office of Technology Assessment, Government Finance Research Center, *Federal Tax Policy and Infrastructure Financing*, OTA contractor report, 1989.

their predominantly urban counterparts,¹⁰ and rural water and sewer systems are considered a higher investment risk than larger systems serving metropolitan areas. As a result, many small communities have been effectively frozen out of the credit market.

Individual household costs are expected to increase as states and local governments become increasingly responsible for public works financing. Household user fees will be increased to cover the capital costs of project construction and the operating costs associated with ongoing maintenance and regulatory compliance. Operating costs are projected to increase with changes in environmental regulation and reductions in federal grant subsidies. For example, central sewer system operating costs averaged \$19.35 annually per person in 1972 when the EPA Construction Grants covered 75 percent of sewer project costs. By 1984 the Construction Grants share was reduced to 55 percent and average per-person operating costs had increased to \$41.61 per year.¹¹

EPA predicts that communities smaller than 2,500 persons will experience the largest increase in annual user costs to fund environmental services. The costs of complying with new federally mandated drinking water and sewage treatment regulations are expected to generate the largest share of these projected increases. By 1995, annual household user costs in small communities could increase by \$170 compared to a projected national average increase of \$100. The cost of small system compliance is expected to be high because many existing small systems are inadequate, new treatment facilities and collection systems must be constructed, and these systems cannot achieve economies of scale because of their small customer base.¹² And compliance with wastewater treatment regulations is expected to be particularly costly in rural areas that are close to clean streams, wetlands and other fragile natural resources.

¹⁰ William L. Stringer, "A Facilities Bond Marketing Authority" (Unpublished report, Chambers Associates, Washington, D.C., 1990).

¹¹ U.S. Environmental Protection Agency, Administration and Resources Management, *Preliminary Analysis of the Public Costs of Environmental Protection: 1981—2000*, 1990.

¹² U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation, *Municipalities, Small Business, and Agriculture: The Challenge of Meeting Environmental Responsibilities*, 1988.

CHAPTER 3

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FEDERAL FUNDING FOR WASTEWATER TREATMENT PROJECTS

Under the EPA Construction Grants program, rural communities had difficulty qualifying for aid. With the transition to State Revolving Funds, many of the same institutional barriers remain in place.

EPA Construction Grants

THE EPA CONSTRUCTION GRANTS PROGRAM was established in 1972, under Title II of the Clean Water Act, to preserve and protect water quality and public health by improving the quality of effluent discharged into the nation's surface water resources. Grants to construct and improve municipal wastewater treatment facilities were made available to states to help facilities comply with federal wastewater treatment standards. The top Construction Grants funding priority was the upgrading of wastewater treatment facilities.

In 1977, federal law delegated grant-making authority to the states in conjunction with EPA. The EPA Needs Survey served as the basis for state Construction Grant allocations. A state allocation was calculated using the ratio between each state's estimated facility needs costs and the national facility needs cost estimate. Federal law also specified a minimum allotment for each state, regardless of estimated facility needs.

The state allotment formula has favored states with larger populations for three reasons: 1) densely populated areas tend to have larger facility needs in terms of overall cost; 2) facility needs in metropolitan areas have been comparatively well documented because of water quality impacts; and 3) enforcement efforts, in order to address severe water pollution and public health problems, initially targeted larger facilities.

Prior to 1984, the Construction Grants program funded 75 percent of project costs, including planning, design and treatment plant construction; recipients were required to provide the 25 percent local share. Grant eligibility was restricted to publicly owned treatment works (POTWs); privately owned facilities were not eligible for Construction Grants assistance. The Clean Water Act defined eligible Construction Grants funding activities, emphasizing wastewater treatment priorities. Funding for collector sewers, which are not an integral component of projects to upgrade the quality of sewage effluent, was restricted under this program.

In 1984, as a result of the 1981 Clean Water Act amendments, the federal grant share declined to 55 percent. Direct grants for preliminary planning and design were terminated; grants provided partial reimbursement for planning and design costs. The 1981 amendments also required states to set aside from 4 to 7.5 percent of Construction Grants funding for projects utilizing "innovative and alternative" (I/A) technologies. A 10-percent Construction Grants bonus was awarded to I/A projects to encourage the installation of appropriate cost-effective technologies such as small-diameter sewers in rural and small communities.

Despite the documented need for wastewater treatment facilities in rural communities, large population centers that generate high volumes of wastewater flow were given first priority for grants because of their comparatively greater impact on surface water quality. Because of the federal priority structure, larger municipalities were able to compete successfully for Construction Grants; many smaller communities were unable to qualify for priority funding status.

In 1984, EPA required states with rural populations accounting for at least 25 percent of the total state population (based on the U.S. Census) to set aside from 4 to 7.5 percent of their grant allocations for communities of fewer than 3,500 persons, in order to ensure that some share of Construction Grants were allocated to small communities. It is not clear, however, that this set-aside provision actually increased the number of grants awarded to small communities.

Cost of Participating In Construction Grants Program

The Clean Water Act established preliminary planning and design requirements for Construction Grants recipients. The cost and complexity of these requirements contributed significantly to time delays between planning and construction, while also giving an advantage to applicants with comparatively sophisticated organizational-managerial skills and the capacity to finance up-front costs. The technical nature of the preliminary require-

ments compelled applicants to hire engineering consultants. Project planning studies — facilities plans — could cost as much as \$500,000. *EPA officials estimate that it took an average of seven years to complete the planning, design and construction process under the Construction Grants program.*

Participants were required to obtain financing for project activities that were not eligible for Construction Grants coverage. By 1984, grantees had to cover up-front costs to complete preliminary studies and received partial reimbursement for preliminary costs. Grantees were required to finance the local share of project construction costs to “match” the federal Construction Grants share. Local share costs often exceeded the difference between federal funding and total eligible costs because of restricted funding eligibilities. The restricted eligibility of new collector sewers — a high unit cost in sparsely populated areas — resulted in high local share costs for many rural communities.

Communities obtained local share monies from federal and state funding sources or obtained tax-exempt or private credit. Many states administered wastewater facility funding programs in addition to the Construction Grants program, and some states developed new wastewater grants program when the federal Construction Grants share declined. Several state wastewater funding programs were targeted to small and low-income communities or provided funding for ineligible Construction Grants costs to reduce local borrowing costs, thereby reducing household user charges. Communities also obtained local share monies from increased user fees, state bond banks, municipal bonds, FmHA water and sewer loans and grants, Housing and Urban Development (HUD) Community Development Block Grants and other federal funding sources.

Impact of Construction Grants Assistance

Between 1972 and 1990, more than \$55 billion in Construction Grants was invested in municipal wastewater treatment facility planning, design and construction nationwide. By 1982, Construction Grants assistance had provided more than 57 million Americans with secondary or tertiary levels of wastewater treatment¹ — and by 1987, more than 5,000 POTWs had received Construction Grants assistance and had constructed secondary wastewater treatment facilities as mandated by federal law.

Even with Construction Grants assistance, however, the wastewater treatment goals of the Clean Water Act were not met. In 1986, EPA

¹ *EPA Journal*, 1986.

determined that more than 1,300 facilities — both urban and rural — would not meet the 1988 secondary treatment deadline.² To date, many of the 1,300 non-complying facilities, identified on the EPA National Municipal Policy (NMP) list, have still not met federal treatment standards. EPA has taken enforcement action against some NMP facilities and is working on compliance schedules with others — or otherwise negotiating agreements to ensure that facilities meet federal compliance requirements.

Benefit to Large and Small Municipalities

EPA and Construction Grants staff agree that Clean Water Act priorities directed funds to larger municipalities where greater water quality and public health impacts could be achieved by constructing and upgrading wastewater treatment plants. The cost and complexity of preliminary Construction Grants requirements also benefitted communities with greater organizational skills and technical capability and, to some extent, weeded out smaller — often rural — communities with less technical expertise.

Many small and rural communities have only recently achieved Construction Grant priority funding status, largely because of competition from larger municipalities and time delays associated with federal requirements. For example, during the Construction Grants program, Pennsylvania's larger municipalities including Philadelphia received the majority of federal assistance. Communities of fewer than 3,500 persons account for the majority of the state's 1988 facility needs estimate of \$3.2 billion.

Large metropolitan areas with populations greater than 500,000 received nearly 25 percent of all Construction Grants funding — \$10.926 billion — between FY 1973 and FY 1990. Communities of this size represent only .2 percent of all municipalities nationwide.

During the same time period, small communities, defined by EPA as communities with fewer than 3,500 persons, received 11.71 percent of all Construction Grants assistance, totaling \$5.272 billion. Yet communities of this size account for more than 70 percent of all U.S. municipalities.

Obviously, large municipal projects cost much more than small and rural community projects. For example, an estimated \$2.2 billion is needed to construct secondary sewage treatment facilities for San Diego, while rural community facilities generally cost less than \$2 million. The overall cost of

² Ibid.

facility projects partially accounts for the disproportionate share of large community funding at more than twice that of small communities.

Discussions with SRF staff indicate that many of the smaller communities that constructed facilities with Construction Grants assistance received grants in the waning years of the Construction Grants program. High-priority urban projects were funded in the early years of the program with 75 percent grants and many small community projects could not achieve funding priority. Urban areas received almost five times as much Construction Grant funding as communities of less than 3,500 between FY 1973 and FY 1976.³

Some states took actions to ensure that large community facility needs would not consume the state's entire Construction Grants allocation by restricting the amount or share of funds granted to any one community as a means of ensuring that funds would be more equitably distributed. For example, the following states specifically limited the amount of Construction Grants awarded to one metropolitan area:

- *Minnesota*: Minneapolis-St. Paul received 40 percent of the state's annual grants allocation;
- *Maryland*: Baltimore City received a third of the state's annual allocation;
- *Utah*: Salt Lake City received approximately three-fourths of Utah's annual allocation; and
- *Nebraska*: Omaha received a third of the state's annual allocation.

Between FY 1977 and FY 1984, an increasing number of small community projects received funding; small communities received an average of 14.6 percent of annual Construction Grants funds.

However, by FY 1984, the federal grant share had declined, and preliminary planning costs were no longer grant-eligible. Small communities received a declining share of Construction Grants, some 10.83 percent annually, between FY 1984 and FY 1987. Many smaller communities could not achieve priority status because they could not afford up-front costs or needed to secure affordable funding for local share costs. Some states

³ Data in this section was obtained from the Grants Information Control System for FY 1983—FY 1990, U.S. Environmental Protection Agency, Office of Municipal Control.

established supplemental funding programs to help small or low-income communities develop affordable facility projects. For example, Minnesota offered supplemental state Construction Grants that covered 50 percent of local share costs for small community projects and 62.5 percent of local share costs for I/A projects.

Small communities experienced a dramatic increase in their share of Construction Grants funding between FY 1987 and 1990 — but while one-quarter of all Construction Grants monies was awarded to small communities, the three years represent the lowest overall Construction Grants levels in the history of the program. In no other years of the Construction Grants program did small communities receive more than 16.4 percent of available grants. It appears that small communities received an increasing share of Construction Grants largely because a growing number of small communities had met preliminary requirements and had achieved priority funding status. However, SRF interviews suggest that funding staff were also aggressively trying to complete small community projects before the advent of state revolving loan funds.

Unmet Need

It is instructive to consider the characteristics of projects that were *not* funded as a result of Clean Water Act appropriations when evaluating the potential impact of the transition to state revolving loan funds on rural wastewater facility needs. SRF staff agree that many of the projects and facility needs that were not funded during the Construction Grants program will not be funded with SRF loans. These include:

1. *Ineligible applicants:* Privately owned systems such as trailer parks were not eligible for Construction Grants assistance and will have restricted eligibility for SRF assistance; they may, however, receive SRF loans to address nonpoint source control projects, such as failing septic systems.
2. *Unsewered communities:* SRF staff agree that communities that did not construct sewage collection and treatment facilities during the Construction Grants program were financially limited by their small customer base — often fewer than 2,500 persons, primarily in low-income households. Many unsewered communities could not afford to finance local share costs even with 75 to 85 percent Construction Grants. Restricted eligibility of new collectors contributed to local share costs and reduced communities' ability to develop new facilities. Collectors continue to have restricted eligibility in the SRF program.

3. *Lack of organizational capacity:* The cost and complexity of preliminary Construction Grants requirements presented an obstacle to small, rural, low-income communities. SRF staff report that many of these communities have yet to complete preliminary planning and design requirements. Many are not expected to be able to meet preliminary federal requirements since they lack the financial capability to cover up-front costs and are unable to hire engineering consultants with the technical skills required to develop preliminary planning studies. Applicants must also comply with federal preliminary planning requirements in order to obtain SRF loans during the federal capitalization phase.

4. *Limited financial capability:* SRF staff report that many projects in small, rural and low-income communities were not completed because they could not afford local share costs during the Construction Grants program. Remaining NMP projects in Mississippi and Minnesota, for example, are not in compliance with federal treatment standards and currently face enforcement orders because they could not afford to construct required facilities with Construction Grants funding. Even with 100 percent grants, state staff say, some NMP projects cannot afford operation and maintenance costs. Such facilities are unlikely to finance compliance projects with SRF loans.

Transition to State Revolving Funds

Title VI of the Clean Water Act of 1987 authorized the federal government to phase out the EPA Construction Grants program from FY 1987 through FY 1994 and to phase in state revolving loan funds as the primary source of wastewater facility funding. During the transition period, federal capitalization grants are being used to seed the loan funds. States are required to commit a 20-percent match for each capitalization grant awarded.

Under the Clean Water Act, states are required to ensure that SRFs provide a permanent source of wastewater facility financing to help municipalities comply with federal standards. The transition from grants to loans requires that states take on greater financial management responsibility and that local governments assume increased financing responsibility for debt repayment.

The transition to state revolving loan funds represents a significant shift in the focus of wastewater facility funding. The Water Quality Act requires that states protect the financial integrity of the loan fund, reduce default risk in the loan portfolio, and generate a sufficient volume of repayments so that future facility needs may be financed. States may refinance, guarantee or insure loans in addition to offering direct loans. The Construction Grants program was structured to increase regulatory com-

pliance. State revolving loan fund staff are likely to give increasing priority to applicants with financial capability, with perhaps less emphasis on compliance needs.

The financial skills needed to meet federal requirements and manage a self-sustaining revolving loan fund differ from the skills needed to manage the Construction Grants program, because states must evaluate credit risks, debt repayment ability and the impact of SRF financing terms on the future relending ability of the fund. Many SRFs are jointly administered by state financial authorities or state bond banks and state environmental regulatory staff with Construction Grants experience. Financing staff establish criteria for lending, evaluating credit risks and establishing dedicated repayment streams, while regulatory staff recommend projects for funding based on technical considerations and water quality priorities.

Although states have increased flexibility when setting funding criteria and financing terms, Congress restricted the use of federal capitalization grants to ensure that secondary treatment requirements of the Clean Water Act were met as a priority. Until the capitalization period ends in FY 1994, federal restrictions apply to use of funds obtained "as a direct result of capitalization," including the federal capitalization grant and state match.

Use of Construction Grants and State Revolving Fund Loans

Federal law provides states with the option of phasing in the loan program while continuing to offer federal Construction Grants through FY 1990, or transferring a share of the state's Construction Grant allocation to the loan program beginning in FY 1987. Construction Grant and SRF loan funds may not be commingled to finance the same project. Communities may, however, obtain a Construction Grant for a distinct project segment such as a treatment facility and apply separately for an SRF loan to finance a different project segment such as new interceptor sewers.

Loan Fund Administration: Under the Water Quality Act, not more than four percent of federal capitalization grant funding may be used to cover SRF administrative costs. SRFs may charge fees to cover administrative costs that are not met with federal monies.

Restriction on Terms of Loans: SRF loans may be disbursed as direct loans, guarantees or insurance, or they may be used to refinance projects funded after March 1985. SRF loans may be issued for a period of no more than 20 years at interest rates below market rate, though the funds may not be offered as grants. States may offer grants from state sources.

Federally capitalized SRFs have the option of providing savings to borrowers in the form of low issuance costs and interest-rate subsidies because states are receiving debt-free federal capitalization grants totalling 80 percent of state revolving loan fund volume. As noted, up to 4 percent of the federal capitalization grant may be used for SRF administration, although states may choose to charge administrative fees if additional working capital is needed.

Because capitalization grants do not have to be repaid, capitalization monies may be used to subsidize loan interest rates. However, if states choose to offer most SRF loans at very low interest rates, the volume of loan repayments that return to the fund for relending will also be reduced. Thus, heavily subsidizing interest rates may create savings for borrowers but at the cost of threatening the long-term viability of the fund.

Funding Priority: States were directed to follow EPA guidelines for prioritizing projects during the Construction Grants program. They may revise priority system structure and ranking for the state revolving funds, but the Act requires that priority scoring for water quality and environmental impacts continue to be stressed. The "first use" requirements of Title VI direct states to issue SRF funds (capitalization grant, state match, and principal and interest repayments from first round of loans) for National Municipal Policy (NMP) projects to correct discharge permit violations prior to obligating loans for other projects. States may issue loans for other projects if this requirement has been met or if non-compliance projects have received other funding, are following an enforcement schedule, or are under administrative order.

Eligible Loan Activities: Eligible loan activities may include facilities planning, design and construction, and eligible costs include nonpoint source control, combined sewer overflows (CSOs), estuary protection and reserve capacity. States may use up to 20 percent of SRF funds for new collector sewers, replacement/rehabilitation and combined sewer overflows. Land, rights-of-way, and easements are not eligible loan costs unless land purchase is an integral component of the sewage treatment facility. Loan eligibility is restricted primarily to publicly owned treatment works; private entities are eligible for SRF loans to address nonpoint source control and estuary protection projects.

Long-term Viability of Loan Fund: States must structure their SRFs to ensure that they are self-sustaining by 1994. They are required to commit an amount equal to 120 percent of each quarterly capitalization grant (the sum of the federal capitalization grant and 20 percent state match) within one year of grant receipt. The Act also requires that all SRF loan recipients specify a dedicated source of revenue to repay the loans. These requirements influence credit review criteria and decisions about interest rate structure, loan terms

and loan amounts, since they directly influence the integrity of the fund and the volume of loans that will be offered following the federal capitalization phase.

Federal law does not prohibit states from lending to public entities such as sewer districts. If states issue general obligation bonds to obtain the required 20 percent match or to leverage the SRF, only public entities with taxing power may be eligible to borrow from the SRF. However, some states may prohibit public districts and private entities from obtaining loans from tax-exempt bond issues. (Chapter 7 provides additional information about lending restrictions in state bond banks and financing authorities.)

In addition, states may be hesitant to issue loans to poor credit risks. As noted elsewhere, smaller communities often lack credit ratings and many have little or no credit history. The absence of a credit rating is not necessarily synonymous with default risk, of course, but states that are bonding to increase the volume of the SRF may favor borrowers whose high credit ratings enhance the marketability of SRF issues — discouraging, actively or otherwise, the participation of non-investment grade entities.

Federal Requirements for SRF Recipients: Applicants must comply with federal planning and design requirements before they may obtain SRF construction loans. The Water Quality Act requires SRF applicants to complete facility planning, environmental impact assessments and other preliminary federal requirements prior to SRF loan approval. States have the option of determining whether preliminary planning and design studies will be eligible loan costs. If SRFs offer preliminary planning and design funding, loans may be issued only as reimbursement for up-front costs.

States must also ensure that all projects funded with loan monies made directly available by federal capitalization grants comply with some sixteen federal requirements. In essence, states must enforce federal construction requirements for an amount equal to the sum of all federal capitalization grants received. A state may accelerate compliance with federal requirements — referred to as “equivalency” requirements — by enforcing requirements on all loans issued, whether or not the monies were obtained directly from federal capitalization grants. Equivalency requirements include compliance with Davis-Bacon wage rates during project construction.

Assessing the Impact of the SRF Transition

Several factors in the SRF transition process make it difficult to conduct an accurate quantitative assessment of rural/urban funding distribution and the affordability of financing for low-income communities under the loan

programs. Although all states had established revolving funds by the FY 1990 deadline, not all had issued loans. Further, some states exercised their option to phase in the loan program and used Construction Grants to complete ongoing projects. In some cases, this practice ensured the financial viability of projects serving small communities. Other lags in SRF start-up can be attributed to the need to establish new state administrative structures, obtain required state matching funds, and prepare new program documents.

To generate demand for construction loans, many states have conducted marketing and education activities. Others had "false starts" because they offered high interest rates or had excessively complex rate structures. These states were unable to generate the number of loan applications necessary to utilize all available loan monies, as required by federal statute.

SRF staff in nearly every state predict that the same financing obstacles faced by small low-income communities during the Construction Grants program will remain — or grow worse — with the transition to state revolving loan funds. SRF staff explain that:

- few unsewered communities that were unable to develop projects with Construction Grants will be able to afford SRF loans; user rates for one eligible unsewered North Carolina community with a 4 percent SRF loan were estimated at \$77 *per month per user*;
- user rates are predicted to double or triple with SRF loans in many rural low-income sewerer communities that have not updated user rates; SRF staff predict that the political liability of raising rates will be a disincentive to upgrade facilities;
- unsewered communities cannot afford the cost of financing ineligible SRF costs such as land, rights-of-way and easements in addition to borrowing from SRF for treatment projects;
- privately owned systems that are poorly managed and in disrepair — including trailer parks and subdivisions — are ineligible for SRF funds but are not meeting federal standards;
- red tape, time delays and the costs associated with meeting preliminary requirements will prevent small low-income communities from participating in the SRF program;
- rising operations and maintenance (O & M) costs compound affordability problems for small low-income communities,

where per-household O & M costs can be expected to exceed 1.5 percent of median household income, the financial capability guideline used as a rule of thumb when assessing project affordability.

The next chapter analyzes the results of a survey of SRF administrators in all 50 states to assess the impact of SRFs on loan distribution and their ability to finance sewer projects in rural low-income communities.

CHAPTER 4
▼
**STATE REVOLVING FUNDS:
FINDINGS OF A NATIONAL SURVEY**

*For rural low-income communities,
access to SRFs depends upon many variables —
but as a general rule the program as structured
cannot be expected to meet their needs.*

WE SENT A QUESTIONNAIRE to state revolving fund (SRF) administrators in all 50 states in May, 1990, regarding the impact of the SRFs on loan distribution and the ability of rural low-income communities to finance wastewater treatment projects (*see Appendix D*). Forty-five states responded to the survey and provided supporting documents, including intended-use plans, annual reports, current priority lists and priority criteria. During the summer of 1990 we conducted follow-up telephone interviews with state revolving fund administrators in all states.

Our principal survey findings are presented here in two sections. The first assesses the impact of federal requirements on SRF funding distribution. The second describes the targeting methods used by SRFs to address small, rural and low-income facility needs, and assesses the potential impact of those targeting methods on the needs of low-income rural communities.

I. Impact of Federal SRF Requirements

The Water Quality Act of 1987 provided for phasing out the EPA Construction Grants program by FY 1990 and established guidelines for creating and operating federally capitalized state revolving funds. The Act requires states to comply with federal requirements when issuing loans made possible by federal capitalization grants. States must also ensure that the long-term viability of the revolving fund is protected as a permanent source

of financing when the federal capitalization period ends in FY 1994. Further, states will continue to be responsible for ensuring that wastewater treatment facilities meet federal standards, with or without federal funds. The transition to SRFs is perhaps the most significant change authorized by the 1987 Act because it marks the end of a twenty-year period of federal capital grant investment in municipal wastewater treatment facilities.

Ability to Fund Rural Poor Community Projects

Federal SRF guidelines do not specifically require states to target SRF loans to projects that serve small, rural or low-income communities. State SRF allocations are based on 1988 EPA Needs Survey estimates in the same manner that Construction Grants allocations were determined. Thus states with major population centers where facility costs are highest receive the largest allocations. States with predominantly rural populations receive smaller allocations than urban states, and the general lack of documentation of rural facility needs further limits the ability of states to use federal allocations to address rural needs.

Some federal requirements may have the effect of further limiting the probability that rural communities will receive SRF loans. For example, states are required to protect the financial integrity of revolving loan funds by issuing loans only to borrowers that can guarantee a dedicated source of repayment, such as user fees or taxes. Rural communities with limited credit history and limited revenue-generating capability obviously constitute greater default risks than larger municipalities with a record of sound financial management practices and substantial tax revenues.

States must also establish lending policies aimed at ensuring that the revolving fund is self-sustaining when the federal capitalization period ends in FY 1994. With this requirement in mind, states may be reluctant to issue SRF loans to rural poor communities at subsidized interest rates because doing so diminishes the volume of the loan repayment stream.

Our survey found that, on the whole, *state lending policies appear to be more strongly motivated by federal requirements than by wastewater facility needs.* Because revolving funds are capitalized with federal grants, SRFs must first administer loan funds and apply loan criteria that meet federal requirements. States will have increased flexibility in loan fund operations only after all federal conditions have been satisfied.

SRF staff suggest that the following specific federal requirements restrict their ability to target loans to rural and low-income facility needs:

■ *State match:* The method used to obtain the required 20-percent state match limits states' flexibility in setting interest rates. States that borrow or issue bonds to meet match requirements may have to make loans at relatively high interest rates to ensure the financial integrity of the SRF. States that obtain interest-free funds, such as through state appropriations, have greater flexibility when developing SRF interest rate structure and offering subsidies.

In West Virginia, for example, the state legislature did not approve an appropriation to cover the state match, so the state government plans to cover the match by charging a 17-percent loan origination fee and then offering loans at zero-percent interest. State officials determined that an unaffordably high loan interest rate would have to be charged if the state match was met by borrowing. West Virginia SRF staff anticipate, however, that rural poor communities may not be able to develop affordable projects because of the impact of loan origination fees on overall project debt service costs.

■ *Restriction on funds for loan administration:* States may allocate no more than 4 percent of SRF capitalization and match funds to loan administration. This restriction has created a hardship for many states. As a result, 20 states currently charge loan processing or closing fees, 13 plan to begin charging loan processing fees and three more are considering using fees to cover administrative costs. Loan fees will add to overall project costs and may further limit rural poor communities' access to SRF loans.

■ *First use requirements:* States must first issue loans to National Municipal Policy (NMP) projects, or otherwise demonstrate that such projects are moving toward compliance by obtaining project financing from another source or working on an enforcement schedule, before loans can be issued for other wastewater projects. In some states, NMP projects are located in very small low-income communities that were unable to obtain affordable local share financing during the grants program and are not viable loan candidates. For example, Minnesota, Mississippi and West Virginia staff agree that rural NMPs cannot afford SRF debt repayment. As a result, these states must issue enforcement orders, levy fines or help NMPs to obtain affordable financing before SRF loans can be issued for other projects.

■ *Loan obligations:* States must ensure that loan obligations are made within one year of receiving each capitalization grant, as required by the Water Quality Act. States are implementing "bypass procedures" to fund projects out of priority order (after NMP first-use requirements have been met) to ensure that this requirement is met. Thus loans are in some cases being issued to lower-priority projects ahead of higher-priority projects. Some

states are meeting the one-year obligation by awarding increased priority scores to applicants for "readiness" (i.e., having complete plans and studies) to help meet loan obligation requirements. The result is that projects in communities with financial capabilities and management skills are more likely to receive funds than those in communities that may be needier but that lack financial and managerial sophistication. In Georgia, for example, SRF staff report that the emphasis on "readiness" in the priority system may effectively penalize small community projects with less organizational capability.

■ *Preliminary documents:* Requirements that facilities plans, environmental impact statements and water quality management plans meeting federal specifications be complete prior to loan approval have the effect of increasing overall project costs, delaying loan applications and, in some cases, reducing states' ability to make the timely binding commitments required by the Act.

For example, South Carolina SRF staff report that because of federal planning requirements it takes approximately 30 months to go from planning to construction compared to the six months that might be required on the conventional market. Preliminary requirements reduce access to the SRF program for rural poor communities that cannot cover the up-front costs needed to meet such requirements.

■ *Equivalency requirements:* SRF construction projects must comply with the National Environmental Policy Act (NEPA), Davis-Bacon wage rates, and other federal requirements that have the effect of increasing project costs — sometimes by as much as 25 percent, according to SRF staff in several states. They maintain that equivalency requirements greatly reduce the affordability of SRF-funded facility projects serving rural and rural poor communities.

■ *Creditworthiness of applicants:* States that borrow or issue bonds to meet state match requirement or that leverage to increase the amount of available loan monies must develop a marketable loan portfolio to issue bonds at favorable rates. These SRFs are tied to projects with good credit ratings, sometimes located in municipalities that are able to obtain comparable or better interest rates on their own, without participating in the SRF. As a result, SRFs that obtain debt-related capital may issue only a small share of loans to rural entities that lack credit ratings or that do not have a history of sound financial management practices.

■ *Ineligible costs:* The restricted eligibility of new collector sewers and the prohibition on use of SRF monies for acquisition of land, rights-of-way, and easements increase the need for additional funding subsidies for rural projects. For example, South Dakota SRF staff report that the 20-percent restriction on major rehabilitation and new collector sewers prevents the state from meeting rural wastewater facility needs. Further, some states do not

offer SRF loans for planning and design activities, resulting in barriers to SRF access and/or higher up-front costs for rural projects that may not have such documentation.

Our SRF survey findings confirm, in short, that *states are issuing the majority of SRF loans to larger municipalities because federal requirements restrict states' freedom to target funds to small, low-income municipalities.*

Ability to Fund Large Municipal Projects

SRF staff agree that states are anxious to reduce federal administrative and lending restrictions so that loan fund operations and structure can be made more responsive to state needs. As a result, most if not all states are actively working to accelerate compliance with federal requirements. Once funds are repaid, federal requirements are dropped.

Because federal requirements will not be tied to the SRF repayment stream, many states are creating incentives for short-term loans or obligating large loans — in some cases nearly the entire fund. *Such procedures ultimately benefit larger municipalities with the greatest financial capability rather than financing projects in communities with the greatest financial need.*

In fact, seven SRFs offer interest rate subsidies based on the length of the loan term as an inducement to accelerate repayments to the loan fund. Therefore, borrowers that can meet short-term debt requirements are more likely to receive a subsidy, regardless of need or their long-term revenue-generating capability.

Promoting disbursement of loans to larger municipalities is routinely referred to as "laundering" SRF monies. While it may accelerate the process of re-lending funds free of federal ties, it diminishes the current volume of funds that could potentially be loaned to small rural communities. Laundering practices reward borrowers with demonstrable financial capabilities rather than borrowers with demonstrable community needs. States with major metropolitan areas or projects with substantial debt service capacity can take advantage of accelerated loan disbursement.

Issuing loans to larger municipalities allows states to comply with federal requirements since larger municipalities possess the organizational and financial capability to meet SRF loan conditions. The amount of funds obligated is directly related to the speed with which federal requirements can be met. *States are therefore targeting funds to larger municipalities because of their borrowing power and their ability to pay.* The large municipality targeting measures described below are similar to targeting methods (reviewed in

Section II) used to direct funds to smaller lower-income communities. Large municipality targeting measures, however, will result in obligating a majority of loan monies to financially capable entities.

SRF survey responses indicate that most states offer incentives for accelerated loan repayment schedules and encouraging disbursement of large loans tied to federal capitalization monies. More than half of all states are:

- providing interest rate subsidies to borrowers that will enter into short-term loans, regardless of the borrower's objective need for subsidized assistance;
- encouraging participation of cities with high bond ratings to enhance the marketability of SRF bonds;
- lending to metropolitan National Municipal Policy projects (NMPs), such as Seattle and Minneapolis-St. Paul, to meet first use requirements; and
- lending to projects that have met all preliminary planning and design requirements by awarding priority ranking for "readiness" to proceed to construction.

Our survey confirms that *large municipalities have significant leverage in obtaining access to SRF funds via the "laundering" process because they possess the organizational and financial capability to meet federal planning and construction requirements.* They usually can demonstrate a history of sound financial management practices and have dedicated sources of loan repayment. And because they are ordinarily good credit risks, they can help states to demonstrate the financial viability of the fund.

Primarily rural states, on the other hand, may not be able to take advantage of SRF laundering. Many rural communities are unprepared to enter into loan agreements because they have not completed preliminary planning and design requirements. Rural states such as West Virginia have few borrowers that can afford to finance project construction with SRF loans, even at zero percent interest. Further, the administrative costs associated with lending are higher for rural states than for urban states, making it more difficult to issue loans quickly. Ordinarily a rural state must package several loans to finance a number of rural wastewater facility projects while an urban state may issue only one loan, equal to the entire loan fund volume, for a high-cost metropolitan project. With less ability to launder SRF funds, rural states may opt to issue loans at higher interest rates in order to generate the necessary repayment stream and protect the corpus of the fund, even though this practice effectively freezes out the state's poorer rural communities.

II. State SRF Targeting Strategies

Increasing Accessibility

States are marketing the SRF to generate demand for loans and educate communities about new program components. Many states are revising Construction Grant procedures so that applicants identify SRFs as new and distinct programs with less federal character. Outreach efforts include simple brochures on the SRF, streamlined procedures and new application forms and pre-application conferences.

In response to insufficient loan demand, some states have instituted marketing procedures and coordination with other funding agencies to ensure that all loan monies are obligated as required under the Clean Water Act. In Arkansas, for example, the SRF interest rate was initially set at 6 percent. With more than half of Arkansas communities eligible for FmHA loans at 5 percent — and eligible for grant funds as well — few applications were submitted to the SRF. After reducing SRF interest rates to 4 percent and coordinating funding schedules with FmHA and other financing agencies, Arkansas has experienced an increase in the number of loan applications.

How SRFs Target Rural, Small and Low-Income Facilities

A total of 34 states are employing targeting methods within SRFs or other state funding and assistance programs to address rural, low-income wastewater facility needs. Twenty-nine states directly target rural or small systems within the SRF or provide interest rate subsidies based on measures of economic need. Twenty-two states offer additional subsidies targeted to small, rural and low-income communities, including planning and construction grants and low-interest loans. (A comparison of SRF targeting methods is presented in matrix form in the Appendix.)

Direct targeting methods employed by SRFs include small system set-asides, low-income community set-asides and separate categories for different population groups or types of facility projects. The use of set-asides and separate categories may ensure that a fixed amount or portion of funds are allocated to specific populations or facility needs. A set-aside means that reasonably similar communities will compete against each other and eliminates competition between large and small communities on the basis of population size, water quality impact, or federal funding priority.

Indirect targeting methods include increased priority system points for small population size or low-income need, variable interest rates based on ability-to-pay, and restrictions on loan amounts. However, while these methods increase the potential for small or low-income community borrowing, they do not guarantee that a specific portion of loans will be obligated to these communities. Loan interest rate subsidies may be the most effective indirect targeting method if criteria used to determine interest rate subsidies result in affordable user charges for low-income communities.

Direct Targeting Approaches

■ *Set-asides* may ensure that a fixed portion of SRF loans will be obligated to specific populations or facility projects. SRF set-asides for small communities, which average 10 percent of total loan funds, may allow communities that have met preliminary requirements and credit requirements to finance wastewater facility projects. The ability to take advantage of small community set-asides is dependent upon the affordability of SRF loans.

Sixteen state SRF survey respondents report that they set aside funds for a target population or project type that benefits small and/or low-income communities:

Small communities: Small community set-asides are used in eight states: Colorado, Florida, Kansas, Kentucky, New York, North Carolina, Oregon and Texas. States' definitions of small communities range from populations of fewer than 3,500 to populations of fewer than 20,000 persons. The largest set-aside for small communities totals more than \$93 million, nearly 15 percent of New York's SRF. Excluding New York, the average set-aside is 10 percent of the SRF, or \$4.1 million.

Financial hardship: Texas sets aside funds for communities experiencing financial hardship, based on unemployment rate, poverty rate and other economic indicators.

States that use set-asides to target small or low-income communities are continuing the small community set-aside model used in the Construction Grants program. The set-aside ensures that a specific share of funds *may* be used for the targeted population. At the same time, however, the vast majority of funds (averaging 90 percent, with an average of 10 percent in set-asides) are reserved for other projects that generally serve larger municipalities. In general, set-asides can be an effective targeting method *if* targeted communities are able to meet preliminary requirements *and* can afford to borrow from the SRF.

■ *Separate categories for small and large communities:* Three SRFs — Texas, Maryland, and New York — target small communities or rural facility needs by using separate funding categories for different population categories within the SRF. For example, New York SRF funds are divided into three population size categories and are allocated in each population category based on the share of facility need of serving a specific population size relative to total state facility needs. (This is the same ratio formula that is used on a national level to determine state SRF allocations.) The use of separate categories means that similar entities compete among each other for funding rather than competing against entities of different sizes and perhaps different financial needs.

This targeting method differs from a set-aside because *all* funds are allotted to particular population groups, not set aside for one specific group or facility need.

Specific funding categories for population groups may allow targeted groups to obtain a larger share of SRF funding than set-asides, depending on the level of documented facility need in each category. However, larger municipalities are likely to obtain the greatest share of SRF funds under this targeting method because of their well-documented project needs and their demonstrable ability to meet debt service requirements.

■ *Rural facility needs:* Eight SRFs have established a separate project category to address rural needs: Illinois, Kansas, Missouri, New Jersey, Ohio, South Carolina, Washington and Wisconsin. The most commonly targeted rural facility need is correcting failing on-site septic systems. Primary targets are unsewered communities, areas with public health hazards as a result of water quality contamination, and areas that need new service. Washington State targets rural needs in the non-point source category by setting aside 10 percent of the SRF for on-site system repair and replacement.

The use of separate categories for different facility needs is the most innovative direct targeting method. Separate facility need categories reduce competition for funding among sewerred and unsewerred communities. The use of an unsewerred category addresses an outstanding rural facility need that was not given funding priority during the Construction Grants program.

Indirect Targeting Methods

■ *Priority scoring:* By revising funding priority systems, states indirectly target funds to small systems, financially needy areas, and specific project types. Seven SRFs award increased points for projects serving low-

income households; two give more points for projects based on population size; and two give points based on measures of financial need.

In addition, some state priority systems give increased points to facilities which set user charges at "reasonable" levels — typically 1.5 times median household income. (EPA Construction Grants historically used this level as a benchmark for affordable sewer charges.) By giving priority to facilities with specific user charge levels, states are encouraging loan applicants to change user rate schedules, perhaps increasing the likelihood that repair or reserve funds will be generated before obtaining SRF loans. Some state administrators say they hope that this approach will help demonstrate to communities that higher user fees are needed to adequately maintain wastewater facilities.

Priority scoring may make SRF loans more accessible to targeted populations. However, small or low-income communities may not qualify for funding priority because many states continue to give considerable priority points for water quality and public health impacts. In addition, many SRFs now give priority points for "readiness," as previously noted, which means that loans are more likely to be awarded to communities that have completed preliminary requirements and are ready to proceed to construction.

■ *Below-market interest rates:* All SRFs offer loans at below-market interest rates (see *Appendix*). In FY 1990, SRF interest rates ranged from zero to 6 percent; some SRFs charge variable rates during the loan term. Twenty-two SRFs offer loans at interest rates based on financial need factors, including median household income, poverty rate, unemployment rate and ratio of user charges to income.

Twelve SRFs (Delaware, Kentucky, Maryland, Minnesota, Montana, Nebraska, New York, Pennsylvania, Tennessee, Utah, Virginia and West Virginia) offer loans at interest rates on a sliding scale — to as low as zero percent — based on ability to pay or demonstrated economic need.

Eight states (Minnesota, New Mexico, Ohio, Pennsylvania, South Carolina, Texas, Vermont, and Washington) offer loans at two fixed interest rates; the lower rate is offered to facilities serving "hardship" areas experiencing economic distress. (Two other states — Indiana and Wisconsin — have plans to offer fixed hardship interest rates.) Most of these states offer loans at zero percent in hardship cases and cap the maximum rate at 2 percent. Pennsylvania provides an additional subsidy in hardship cases, increasing loan terms to a maximum of 40 years in cases of severe economic need, twice the normal maximum under the SRF.

Eligibility for New Mexico SRF's zero percent hardship interest rate is based on community median household income level *and* sewer user charges. Hardship rates are granted only to low-income communities with sewer use charges of \$15 per household per month. The current average sewer user rate in New Mexico is \$7.26 per month — a rate too low to generate adequate funds for facility operation and maintenance, according to SRF staff. In three years of operation, not a single zero percent loan has been issued in New Mexico; community reluctance to increase user charges may be the principal reason.

Subsidized interest rates are also offered for specific project types, increasing their financial viability. For example, both Arkansas and New York offer lower interest rate loans for projects that utilize Innovative/Alternative (I/A) technologies. Wisconsin and Illinois SRFs offer interest rate subsidies for unsewered community projects. Indiana is proposing to offer interest rate subsidies for unsewered community projects as well.

Illinois reduces interest rates for projects necessary to meet compliance requirements. Wisconsin offers increased interest rate subsidies to facilities that meet compliance prevention standards. The state's compliance prevention program is the most advanced in the nation.

Interest rate subsidies appear to be the most effective method of targeting small, low-income rural facility needs — depending on the method used to determine "affordable" interest rate charges and the overall amount of funds needed. For example, the Virginia SRF sets loan interest rates based on users' ability-to-pay. Affordable user charges are defined as a portion of median household income (MHI) as follows: .5 percent of MHI when under \$15,000; 1 percent of MHI when between \$15,000 and \$22,000; 1.5 percent of MHI when over \$22,000.

Virginia SRF staff structured the SRF program to address small community needs and anticipate that more small communities will receive wastewater project financing from the SRF than were funded during the Construction Grants program because of the affordability of SRF loans. In FY 1988, 30 percent of SRF loans were issued to communities with fewer than 3,500 persons; 30 percent to regional systems serving two or more communities with fewer than 3,500 persons; and 40 percent of SRF loans went to large metropolitan areas.

■ *Increasing the Distribution of SRF Funds:* More than a third of all SRFs seek to broaden the distribution of SRF monies by restricting the amount or share of funds that may be awarded to any one project or community. Nine states use per-project caps ranging from \$3 million to \$20 million, while nine others restrict project share as a portion of the total SRF, ranging from 10 to 60 percent. Missouri does not explicitly restrict funds available to the state's largest cities, St. Louis and Kansas City, but negotiates annual allocations available to them; other states follow similar practices.

SRF funding restrictions ensure that loans will be issued to more than one project. The use of a restriction may be most significant in states where urban areas have considerable facility needs and, in the absence of a restriction, could borrow the entire volume of loan funds. However, the size of the project cap or share of funds must be evaluated to determine whether restrictions encourage broader distribution of funds among a number of facility projects, including those in rural communities. For example, the Georgia SRF limits communities to one loan commitment in any three-year period, with a maximum of \$6 million per loan. Such restrictions may help to make SRF loans more broadly available. The Oregon SRF restricts any borrower to no more than 25 percent of available funds, specifically in order to help keep the fund accessible to small communities.

Supplemental State Programs

In assessing whether states are targeting small low-income communities, it can be misleading to look only at the SRF. Nineteen states offer supplemental state wastewater facility funding, often structured to increase demand for or affordability of SRF loans; 13 states target supplemental funds to small communities; 14 states target funds for low-income areas. In addition, six states offer grants for preliminary planning and design studies, helping small low-income communities gain access to SRF loans by meeting up-front requirements.

Rather than offering a direct interest-rate subsidy, a number of states offer supplemental grants or low-interest loans to small or low-income communities to help reduce their debt share. Supplemental funds are made available from other state sources.

At least 19 states offer supplemental funds targeted to small or low-income communities for wastewater facility projects or related activities. Eight states target wastewater facility funding for projects that serve small, low-income communities; five states target funds to small communities; and six states target funds to low-income communities. In some cases, grant

monies are tied to the SRF, providing a subsidy that increases the affordability of SRF loans and gives communities an incentive for obtaining them.

For example, North Carolina's SRF operates in much the same way as the FmHA Water and Waste Disposal Loan and Grant program: borrowers are required to meet specific debt service requirements equal to 1.5 percent of county MHI. State grant monies, limited to \$500,000 per local government, are issued to supplement SRF loans in cases where loan repayment would result in user charges that exceed debt service requirements.

Six states offer planning and/or design grants to enable small low-income communities to meet federal requirements so that they may be eligible for SRF loans.

Some states that have established supplemental funding programs to target small or low-income communities anticipate using federally capitalized SRFs only for larger community projects because small and low-income communities do not have the financial capability to repay SRF loans. When California SRF staff were developing the SRF program, they needed to meet both large urban facility needs and the outstanding needs of unsewered rural communities. The state chose to target SRF loans to larger municipalities that could afford debt repayment schedules. The state legislature appropriated \$25 million annually for a grants program targeted to small low-income communities to assist with the development of new sewage collection and treatment facilities.

Supplemental state grant programs that target funds based on population size and ability-to-pay may offer the only affordable wastewater financing alternative for some rural poor communities. Numerous rural poor communities cannot afford 100-percent debt service for wastewater facility projects but may be able to develop affordable projects either by combining SRF loans with state grants or obtaining state grants and low-interest loans. When states have streamlined procedures and few preliminary requirements, state funding may be more accessible to rural poor communities than SRF loans. Rural poor communities may gain access to SRF set-asides or subsidized SRF loans if states offer planning grants to such communities.

■ *Rewarding Good System Management and Compliance:* With more flexibility in priority system scoring, many states have stopped giving high rankings to facilities that violate federal standards. Some states now award points for good compliance records and other measures of competent operation, management and maintenance. These include implementation of capital improvement plans, training level of treatment plant operators and user rates that cover operation, maintenance and depreciation costs.

Several states offer technical assistance in conjunction with the SRF to correct operation and maintenance problems. Such assistance includes assessing operations and maintenance problems, providing reports on findings, and improving communications between plant operators and system managers. States that provide management-related assistance include Alaska, Minnesota, Wisconsin and Vermont.

Effectiveness of Targeting Methods

Most SRF administrators agree that targeting measures do not guarantee that the wastewater facility needs of rural communities will be fully addressed with available funding. Regardless of targeting strategies, large municipalities will receive the majority of SRF loans. To a limited extent, some smaller communities with access to SRF loans and debt repayment ability may be able to finance projects, particularly when SRFs are specifically targeting smaller community projects. But many rural poor communities are unlikely to borrow from the SRF because of limited access, limited revenue generating capability and limited debt repayment ability. SRF survey findings show that:

- 40 of the 45 states responding anticipate that some small systems will be unable to afford SRF loans;
- 51 percent of all respondents in 23 states consider the lack of grant funds to be the greatest obstacle to addressing rural low-income facility needs; and
- 42 percent of all respondents in 19 states report that excessive project costs, based on per-household cost or user rates as a portion of median household income, is the largest impediment to financing rural facility projects with SRF loans.

SRF staff nationwide said their greatest funding challenge was in communities with on-site problems that can only be corrected by developing new sewage collection and treatment facilities. Unsewered areas frequently have no existing financial or revenue generating base and little or no credit history. They are, in that sense, an unknown credit risk. Further, some unsewered areas have not developed municipal facilities because they lack a sufficient customer base to achieve necessary economies of scale in project construction financing.

According to SRF staff, many unsewered communities could not afford local share costs during the Construction Grants program, when the federal grant share was between 55 and 75 percent of total eligible costs. Local share

costs for sewage collection and treatment facility development were unaffordable for some rural communities that needed to cover a combination of 25 to 45 percent local share costs associated with Construction Grants assistance *and* ineligible costs such as new collector sewers. Communities that were unable to finance sewer projects during the Construction Grants program are not likely to be viable loan candidates today.

SRF staff explain that even with zero-percent loans or 100-percent grants, some rural poor communities will not be able to afford operation and maintenance (O & M) costs. The rising expense of complying with environmental standards coupled with rural communities' inability to spread costs across a broad customer base make O & M costs unaffordably high for such communities.

Impact of Targeting on Facility Needs in Rural Poor Counties

While many large municipalities received EPA Construction Grants for wastewater facility construction, most states report that the transition to SRF loans occurred before small, rural communities had obtained grants. In addition, many rural communities have not completed planning and design requirements. These preliminary requirements must be met before communities can receive SRF loans. However, if communities borrow from the SRF to cover planning and design as well as construction activities, user charges will increase substantially, perhaps to unaffordable levels.

Rural poor communities face higher facility financing costs than under the Construction Grants program because they must borrow construction funds *and* must repay loans within twenty years. SRF staff agree that rural poor communities require substantial grant assistance or longer-term loans to develop affordable projects. By themselves, the targeting methods identified in the SRF survey do not offer much hope that rural communities will be able to obtain a level of subsidy comparable to that of the Construction Grants program.

A total of 34 SRFs (68 percent) responding to the survey are targeting small or poor communities. While eight states set aside funds for small communities, only one targets communities of fewer than 1,000 persons. Very small communities are widely assumed to be poor loan risks, and few will be able to afford debt service even at subsidized interest rates. It is doubtful that very small communities can obtain funding to meet federal Clean Water Act requirements without supplemental grants.

The outlook is similarly bleak for addressing the need for new sewer service and the problem of chronic facility noncompliance among facilities

located in rural poor counties. In the Southern census region, where such needs are concentrated, many states do not offer interest rate subsidies and few set aside funds for small or poor communities.

- The Louisiana SRF offers loans at a fixed interest rate of 5.5 percent, one of the highest rates in the country. More than a fourth of the operating facilities in Louisiana's rural poor counties are out of compliance with discharge permit standards. This interest rate is unlikely to result in affordable debt service. No targeting methods are employed in the Louisiana SRF.
- In the first year of SRF operations, Mississippi offered loans at a fixed 5-percent interest rate. The rate was reduced to 3 percent because there was no demand for funds at the higher rate. While the state is not directly targeting small low-income communities, SRF staff are encouraging communities to try to couple grants from FmHA or CDBG with SRF loans — but SRF staff say that the added project costs associated with meeting federal requirements will bar many communities from developing affordable projects, even with grants.
- Although the North Carolina SRF currently offers loans at a fixed 4-percent rate, state grants are available for high unit-cost projects. Fifteen percent of SRF funds are set aside for unsewered communities. As of July, 1990, however, not one unsewered community project had received an SRF loan, because project costs were unaffordable. One otherwise eligible project had estimated user charges of \$77/month. State SRF staff say that many unsewered communities can afford to repay debt for only 25 percent of project costs and would need to obtain the remaining 75 percent in grants from other sources.

Policy Implications of the SRF Transition

Although the 1988 EPA Needs Survey shows that rural wastewater treatment facility needs represent about 25 percent of the nation's total \$63 billion need, it is unlikely that total rural facility financing will significantly increase from the 8- to 12- percent levels achieved during the Construction Grants program. *The method of determining state SRF allocations limits states' ability to effectively target rural needs because of the lack of rural needs documentation and the comparatively greater cost of urban projects.* With limited federal funding, a set-aside of 10 to 20 percent in a rural state may mean that only \$2 million or so is available for rural projects each year — enough to finance one or two projects at most.

Until rural poor communities complete preliminary requirements, they will not be able to obtain access to SRF loans regardless of whether funding terms are affordable or whether there are set-asides for rural low-income communities. Since rural poor communities often lack the financial capability to cover up-front costs and the organizational capability to meet preliminary requirements, their access to SRF loans will be limited. SRF staff assert that more rural communities would gain access to the SRF if federal planning and construction requirements were eased or eliminated. Some SRF staff recommend that state staff provide rural communities with preliminary engineering assistance to evaluate planning and design options.

The transition to SRFs provides states with greater flexibility when setting funding priorities. SRFs that contain a separate category for unsewered community projects eliminate competition for funding priority between rural and urban communities. The focus on unsewered community needs is a dramatic shift from Construction Grants because it addresses both sewage collection and treatment needs, rather than giving treatment needs top priority. *Some rural poor communities may be able to develop severely needed wastewater facilities when SRFs use unsewered funding categories or offer loan subsidies to unsewered communities.* The effectiveness of unsewered community targeting is dependent upon SRF access and loan affordability.

The Water Quality Act allows states to issue SRF loans for nonpoint source control projects. Some states are targeting nonpoint source control needs in rural communities by providing loans for cost-effective rural solutions such as septic system replacement and septage management districts. It is not likely that a significant share of funds will be allocated for nonpoint source control, however, because such needs were not addressed by or included in the 1988 EPA Needs Survey. In addition, *the use of nonpoint source control funds may not address rural facility needs in states that prohibit private entities, including individual households and trailer parks, from receiving public funds or general obligation bond issues.*

For many rural communities, SRF loans will not be an affordable financing option because of high project and O & M costs. SRF staff agree that *additional grants and low-interest loans are needed to provide rural poor communities with affordable wastewater facility financing.* States that are primarily rural and comparatively poor may be limited in their ability to provide additional subsidies. States that seek to increase the volume of loan monies available by increasing their overall borrowing or bonding must be able to show that creditworthy projects are participating in the loan program. By definition this gives an advantage to larger cities. Some rural states will either be unable to leverage additional funds or will have to refrain from doing so because they would have to increase their SRF interest rates to meet bond-repayment schedules.

If states with the greatest rural needs cannot provide affordable wastewater facility financing, should the federal government provide additional subsidies targeted to meet rural needs? *Some SRF staff argue that the Water Quality Act should continue to provide grant financing for rural wastewater projects so that rural communities can benefit from the same level of federal investment that urban areas received during the Construction Grants program.* States are beginning to look more carefully at combining project funds from other sources, including FmHA and Community Development Block Grants (CDBG), to help rural communities develop affordable projects. (The following chapter provides an analysis of whether FmHA, for example, can or should fill the wastewater facility funding gap left by the Construction Grants program.)

Finally, the challenge of assisting unsewered communities cannot be fully addressed by direct loans or loan guarantees. In some cases, *supplemental state grants or extending loan terms to 40 years would also reduce annual debt service to affordable levels for rural poor communities.* Many rural poor communities need substantial grants because of their inability to spread costs or support sufficient O & M budgets. Subsidies would be particularly critical in states with limited bonding capacity and low state revenues, where compliance problems are concentrated.

Overall, the transition to the SRF may not provide an increased level of funding to rural communities, compared to the Construction Grants program. Rural low-income communities with very limited financial capability and incomplete needs documentation are unlikely to be given priority status or to find affordable financing within the SRF. Numerous low-income communities with limited revenue-generating capability that did not construct wastewater treatment facilities because they could not afford local share costs during the Construction Grants program are not likely to be able to afford SRF loans.

CHAPTER 5
▼
**FARMERS HOME ADMINISTRATION
WATER AND WASTE DISPOSAL
LOAN AND GRANT PROGRAM**

*The only federal program that provides
water/sewer funding exclusively to
rural communities, FmHA Loans and Grants could
be in greater demand than ever before.*

THIS CHAPTER PROVIDES AN OVERVIEW of the U.S. Department of Agriculture's Farmers Home Administration (FmHA) Water and Waste Disposal Loan and Grant program and the role of FmHA funding in addressing rural wastewater facility needs. The chapter includes an analysis of the characteristics of sewer projects that received joint funding from FmHA and the EPA Construction Grants program and those that received FmHA-only funding between FY 1985 and FY 1988. This analysis provides a basis for anticipating the impact of the SRF transition on the composition and characteristics of FmHA funding recipients.

Background

Established under the 1972 Consolidated Farm and Development Act amendments, FmHA's Water and Waste Disposal Loan and Grant program has made a significant contribution to alleviating rural drinking water and wastewater treatment problems. This is the largest of FmHA's community development programs. Between 1972 and 1987, FmHA loaned more than \$9.5 billion to 28,000 communities and issued more than \$3 billion in grants to 13,600 communities for water and sewer projects.

FmHA Water and Waste Disposal Grants declined between 1982 and 1989, from \$515.2 million in direct loans and \$183.3 in grants to \$359.4 million

and \$119 million respectively.¹ More recently, funding has increased; FY 1991 appropriations for FmHA water and sewer facility loans total \$550 million, and \$309 million in grants, nearly a third higher than FY 1990 funding levels.² For the first time in nearly a decade, FmHA allocations exceed 1982 loan and grant levels.

The water and sewer program was created to help rural and rural poor communities gain access to safe drinking water and sanitary waste disposal systems. FmHA water and sewer funding is allocated to states based on two equally weighted factors: 1) the state's percentage of total U.S. rural population and 2) the state's percentage of total U.S. rural population living below the poverty line. Both are based on the most recent census.

Eligibility for FmHA funding on subsidized terms is restricted to small rural communities (defined by FmHA as communities with populations of 10,000 or less) and specifically to low-income rural communities that cannot obtain affordable water and sewer project financing from conventional lenders or other funding sources. Community size, income and ability to pay receive priority consideration in FmHA funding determinations. Priority ranking is also given to projects that will address drinking water or sewage treatment violations.

Funding Structure

Funding Priority: The FmHA Water and Waste Disposal Loan and Grant program is the only national program that provides water and sewer project funding exclusively to rural communities. Loan and grant awards are based on ability to pay; increased priority is given to projects serving smaller populations with greater financial need, based on median household income, poverty levels, and size of service population. Other community need factors are considered in rating projects, including the public health benefit of projects that address drinking water or sewage treatment violations.

Eligible Activities: FmHA financing may be used to construct, improve, enlarge or extend drinking water systems and sanitary waste disposal facilities. Funds may not be used to purchase existing systems or to refinance projects.

¹Figures represent FmHA loan and grant amounts in constant 1991 dollars.

²Searching for "The Way That Works": An Analysis of FmHA Rural Development Policy and Implementation. Center for Community Change, 1990

Eligible Applicants: Eligible loan and grant applicants include municipalities, counties, and public service districts, in addition to nonprofit associations and cooperatives. Public entities such as counties, municipalities or service districts may apply for funds to serve projects in incorporated or unincorporated areas. Funds may be awarded only to "truly rural" areas — that is, those with populations under 10,000 that are not adjacent to larger communities.

The median household income of the service population is used by FmHA to determine loan and/or grant eligibility. Subsidized interest-rate loans may be awarded to areas with median incomes at or below the statewide non-metropolitan median household income (SNMHI) based on the most recent decennial census data or to applicants with poverty-level incomes based on annual census data³. Grants may be awarded only to applicants that meet specific income criteria and debt service requirements.

Terms of Loan and Grant Financing: FmHA loans are offered for 40-year terms. FmHA regulations specify loan interest rate and grant determinations using several criteria including: median income, population size and impact of project on imminent health hazards.

The FmHA water and sewer loan program uses a three-tiered interest rate structure. Loan interest rates and grant eligibility are based on a comparison of the applicant's income to the SNMHI or the poverty rate and an assessment of the applicant's repayment ability based on water or sewer user charge revenues.

- Applicants with incomes greater than the SNMHI (unless the "rubber ruler" applies — see Footnote 3) are eligible for loans at market rate interest, set by the FmHA national office on a quarterly basis and defined as the average of the previous four weeks' Municipal Bond Buyer's Index rate.
- Applicants with incomes between 80 and 100 percent of the SNMHI are eligible for "intermediate" rate loans and grants totalling up to 55 percent of project costs. The intermediate rate

³ FmHA generally uses decennial census data for median household income statistics. However, FmHA uses an annually updated calculation of the poverty line. The poverty level therefore increases over time relative to community median household income. This inconsistency in FmHA income data, referred to as the "rubber ruler" of poverty, has created a dilemma for some states: by FY 1988, the updated poverty level exceeded the state nonmetropolitan median household income (SNMHI) in Arkansas and Mississippi. As a result, poverty level communities in the two states are eligible for FmHA loans and grants even though their income levels exceed the SNMHI.

is equal to one-half of the difference between 5 percent and the market rate (but no greater than 7 percent).

- Applicants with incomes below the poverty level or 80 percent or below the SNMHI are eligible for 5 percent loans and grants totalling up to 75 percent of project costs.

It should be noted that applicant eligibility does not guarantee receipt of a maximum allowable grant or low-interest loan. For example, FmHA loan and grant distribution data shows that 42 percent of all projects funded in poverty level communities in FY 1988 received *no grant assistance*. Among poverty level communities that did receive grant assistance in that year, FmHA grants made up nearly 70 percent of the total FmHA contribution.⁴

Loan Determination: FmHA evaluates the impact of debt repayment on water/sewer user charges to determine the level of loan and grant funding that will be awarded to a particular applicant. FmHA has established guidelines for "reasonable" user charges for rural poor communities: 1) an applicant's debt service should result in user charges equal to one-half of one percent to one percent of the median household income of the service area; and 2) user charges should be comparable to the user charges of similar communities in that geographic area.

However, this guideline does not guarantee that resulting user rates will actually equal one percent of the area's income. FmHA does not include the costs of operation and maintenance and equipment reserve and replacement in user charge calculations.

Exceptions to the one-percent rule may be allowed in cases where the resulting user charges are not comparable with user charges of similar communities. When user charges would exceed those of similar communities, FmHA may obligate additional grant funds such that water or sewer user charges are less than one percent of median household income. There is also evidence that in some cases FmHA has required communities to increase user charges above the one-percent level so that user charges will not be lower than those of comparable communities.

Grant Determination: Applicants must demonstrate that they are meeting FmHA debt service requirements, whether borrowing from FmHA or other sources, before they will be eligible for FmHA grants. Many FmHA recipients receive both FmHA loans and grants. Some FmHA recipients have

⁴Searching for "The Way That Works", op. cit.

received 100 percent grants when applicants have met FmHA debt service requirements by borrowing from another funding source.

For the past five years, FmHA loan allocations have been three times the size of FmHA grant allocations. As a result, states have been cautious about making grant awards. Many grant-eligible applicants have been unable to obtain FmHA funding because states have not had enough grant money available to meet their requests. However, FY 1991 appropriations may help to address outstanding funding needs. Grant levels have been increased to some 60 percent of the total amount available in FmHA loans.

FmHA's Role in Wastewater Facility Financing

This section provides data on the characteristics of FmHA projects that received EPA assistance as well as FmHA-only projects in order to evaluate the role of FmHA funding for sewer projects and the potential changes in FmHA's funding role in light of the termination of the EPA Construction Grants program. Program data used in the analysis was obtained from the FmHA Rural Community Facility Tracking System (RCFTS) from FY 1985 through FY 1988.⁵

FmHA awarded \$575.9 million in loans and \$177 million in grants for sewage collection and treatment projects, representing 42 percent of total FmHA funds, between FY 1985 and FY 1988. In FY 1988, sewer projects represented \$209.4 million of a total FmHA program level of \$448 million. More than 30 percent of all sewer projects funded by FmHA during this time period also received EPA Construction Grants funding. The remainder of FmHA-funded sewer projects did not receive EPA assistance.

⁵ The RCFTS contains records of all FmHA loan and grant recipients, including the size of community, income, loan amount, loan interest rate, grant amount and type of project. RCFTS data also contain fields for "other sources of income" contributing to the project. Thus it is possible to determine whether projects received EPA Construction Grants. However, HUD Community Development Block Grants are combined under a "state funding sources" category in RCFTS data. It may not be feasible to use the RCFTS to assess the role of SRF loans in FmHA funded projects because FmHA staff anticipate that SRF loans will also be included in the "state funding sources" category.

Characteristics of FmHA Funded Sewer Projects

Waste disposal projects account for 40 to 46 percent of all FmHA projects funded between FY 1985 and FY 1988. As Table 4 indicates, FmHA funding was evenly divided between sewage collection projects and sewage treatment projects in FY 1985 through FY 1987. (In FY 1988, FmHA records did not identify the type of waste disposal project.)

In the Northeast and North Central census regions, sewer projects account for the majority of all funded projects. Table 5 shows that in the Northeast more than 60 percent of all projects funded addressed sewer needs. In the Southern states less than half of all projects addressed sewer needs, with more than 60 percent of all funding used for water projects. Sewer projects averaged less than 35 percent of total FmHA funds obligated in the Southern states between FY 1985 and FY 1988.

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Table 4

FmHA WATER-SEWER PROJECTS BY TYPE, FY'85-FY'88

	Fiscal 1985				Fiscal 1986			
	Projects		Funding (\$000s)		Projects		Funding (\$000s)	
	Number	Percent	Amount	Percent	Number	Percent	Amount	Percent
Water	532	54%	\$282,822	62%	501	58%	\$247,189	57%
Sewer Collection	235	24%	\$103,269	23%	187	22%	\$97,264	22%
Sewer Treatment	216	22%	\$68,490	15%	176	20%	\$92,103	21%
Other	7	1%	\$2,908	1%	3	0%	\$830	0%
All Projects	990	100%	\$457,489	100%	867	100%	\$437,385	100%

	Fiscal 1987				Fiscal 1988			
	Projects		Funding (\$000s)		Projects		Funding (\$000s)	
	Number	Percent	Amount	Percent	Number	Percent	Amount	Percent
Water	450	56%	\$254,322	58%	440	59%	\$236,614	53%
Sewer Collection	168	21%	\$80,357	18%	#	#	#	#
Sewer Treatment	177	22%	\$101,993	23%	302	40%	\$209,410	47%
Other	11	1%	\$4,781	1%	9	1%	\$2,009	0%
All Projects	806	100%	\$441,453	100%	751	100%	\$448,034	100%

All sewer projects in single category in FY'88.

Table 5

REGIONAL DISTRIBUTION OF FmHA WATER AND SEWER PROJECTS

	Fiscal 1985				Fiscal 1986			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Northeast	36	7%	75	17%	53	11%	75	21%
North Central	112	21%	141	31%	94	19%	101	28%
South	346	65%	190	42%	321	64%	165	45%
West	38	7%	45	10%	33	7%	22	6%
All Projects	532	100%	451	100%	501	100%	363	100%

	Fiscal 1987				Fiscal 1988			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Northeast	42	9%	55	16%	42	10%	49	16%
North Central	92	20%	106	31%	76	17%	94	31%
South	284	63%	164	48%	278	63%	137	45%
West	32	7%	20	6%	44	10%	22	7%
All Projects	450	100%	345	100%	440	100%	302	100%

Table 6 compares water and sewer projects in terms of their distribution by relative community income. In Fiscal Years 1985 through 1987, more sewer than water projects were funded in communities with incomes below 80 percent of SNMHI. In FY 1988, there was less difference in the income of sewer project recipients and water project recipients, although the relative income for the average sewer project was slightly below the relative income for the average water project.

Table 7 provides a comparison of FmHA water and sewer projects in terms of the type of assistance provided. Sewer projects consistently received a smaller share of assistance in grants; only 23 percent of all sewer project funds were grants in the four year period. Sewer projects account for a larger share of loans at 5 percent interest than water projects. The number of 5 percent sewer project loans issued increased between FY 1985 and FY 1988.

Because more than 30 percent of all FmHA sewer projects received Construction Grants covering a minimum of 55 percent of project costs, it is not surprising that FmHA sewer project funding requests were lower than FmHA water project requests. Some sewer project applicants may have had the debt service capacity to borrow FmHA loans without needing additional funds in grants, and this could account for the lower overall share of grant funds in FmHA sewer projects.

The high share of 5 percent loans among FmHA sewer projects may also be attributable in part to EPA activity. EPA took enforcement action against numerous violators including small, rural systems to ensure compliance with the July 1988 National Municipal Policy (NMP) deadline. An increasing number of small systems received Construction Grants funding to complete wastewater treatment projects. Because FmHA issues 5 percent loans when projects address compliance problems, it is likely that some FmHA sewer projects received funding priority because of EPA enforcement pressure.⁶

⁶ RCFTS data do not provide information on the severity of water quality or sewage treatment problems addressed by a funded project. RCFTS data contain the priority ranking score of each funded project — but it is not possible to determine how different priority factors contributed to the overall score.

Table 6
RELATIVE INCOME OF FMHA WATER AND SEWER PROJECTS

Community Income Relative to Statewide Median	Fiscal 1985				Fiscal 1986			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Not Over 80%	188	35%	197	5%	171	4%	149	5%
Between 80 & 100%	181	34%	131	4%	203	5%	140	5%
Over 100%	163	31%	123	3%	127	3%	74	3%
All Projects	532	100%	3608	100%	4008	100%	2904	100%
Average Rel'ship	91.2% NMHI		87.9% NMHI		91.8% NMHI		85.1% NMHI	

Community Income Relative to Statewide Median	Fiscal 1987				Fiscal 1988			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Not Over 80%	154	9%	151	11%	141	8%	103	9%
Between 80 & 100%	175	10%	130	9%	197	11%	138	11%
Over 100%	121	7%	64	5%	102	6%	61	5%
All Projects	1800	100%	1380	100%	1760	100%	1208	100%
Average Rel'ship	90.6% NMHI		85.2% NMHI		90.1% NMHI		88.2% NMHI	

NMHI = Nonmetro Median Household Income (1979).

Table 7
FUNDING FOR WATER AND SEWER PROJECTS BY TYPE OF ASSISTANCE
(Thousands of Dollars)

	Fiscal 1985				Fiscal 1986			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Grants	\$75,935	27%	\$42,757	25%	\$71,210	29%	\$42,911	23%
5% Loans	\$21,901	8%	\$19,171	11%	\$17,699	7%	\$30,963	16%
Interm. Loans	\$86,116	30%	\$45,115	26%	\$89,943	36%	\$71,971	38%
Market Loans	\$98,870	35%	\$64,717	38%	\$68,337	28%	\$43,523	23%
All FMHA Funding	\$282,822	100%	\$171,759	100%	\$247,189	100%	\$189,367	100%

	Fiscal 1987				Fiscal 1988			
	Water Projects		Sewer Projects		Water Projects		Sewer Projects	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Grants	\$71,535	28%	\$41,500	23%	\$63,525	27%	\$49,899	24%
5% Loans	\$28,082	11%	\$40,381	22%	\$33,827	14%	\$50,795	24%
Interm. Loans	\$92,688	36%	\$60,590	33%	\$84,119	36%	\$67,609	32%
Market Loans	\$62,017	24%	\$39,879	22%	\$55,142	23%	\$41,108	20%
All FMHA Funding	\$254,322	100%	\$182,350	100%	\$236,614	100%	\$209,410	100%

Extent of EPA Involvement

Recipients of EPA Construction Grants have been required to contribute local share costs to complete project financing. Between FY 1985 and FY 1988, the Construction Grants share was 55 percent — except in the case of innovative/alternative technology projects, when it was up to 75 percent. It is likely that some EPA-FmHA recipients used FmHA funds to meet local share requirements.

The EPA Construction Grants program restricted the amount of funding for collector sewers, a high project cost in sparsely populated rural areas and a component of facility needs in unsewered areas. Less than one-third of all FmHA-funded sewer collector projects obtained joint funding from EPA and FmHA, suggesting that EPA funding did in fact play a diminished role in addressing rural sewer collector needs.

FmHA data show that a significant share of its sewer projects also received funding from EPA. In FY 1985 through FY 1988, 31 percent of all FmHA sewer projects also received EPA assistance. Not surprisingly, jointly funded projects tended to be larger projects in terms of overall funding. EPA funding accounted for the largest share of sewer project funding in jointly funded projects. As noted, the EPA share averaged more than 55 percent of project costs. The FmHA share averaged 33 percent, increasing slightly in FY 1987 and FY 1988.

EPA participation in FmHA projects was most frequent in projects in the North Central region and less frequent in the Southern states. The regional pattern of EPA participation is somewhat consistent with overall sewer project funding patterns, with the North Central and Northeast states accounting for the majority of FmHA sewer projects (see Table 8, *next page*). Regional patterns may also be a result of EPA and state environmental agency enforcement, Construction Grants priority, targeting of other funding and assistance to address rural sewer project needs, or the relative level of demand for funding for drinking water system facilities.

Eighteen states reported an average of at least 10 sewer projects annually between FY 1985 and FY 1988. In nine of the 18 states, more than 40 percent of all FmHA sewer projects also received EPA assistance.⁷

⁷The nine states with more than 40 percent of all FmHA sewer projects also receiving EPA assistance: Illinois, 50 percent; California, 49 percent; Kentucky, 46 percent; Ohio, 47 percent; Maine, 45 percent; Minnesota, 45 percent; Michigan, 43 percent; Tennessee, 43 percent; North Carolina, 41 percent.

Table 8

REGIONAL DISTRIBUTION OF SEWER PROJECTS WITH EPA PARTICIPATION

	Fiscal 1985			Fiscal 1986		
	Total	With EPA Funds:		Total	With EPA Funds:	
	Number	Number	Percent	Number	Number	Percent
Northeast	75	32	43%	75	27	36%
North Central	141	60	43%	101	39	39%
South	190	64	34%	165	44	27%
West	45	21	47%	22	6	27%
All Projects	451	177	39%	363	116	32%

	Fiscal 1987			Fiscal 1988		
	Total	With EPA Funds:		Total	With EPA Funds:	
	Number	Number	Percent	Number	Number	Percent
Northeast	55	18	33%	49	9	18%
North Central	106	37	35%	94	40	43%
South	164	32	20%	137	29	21%
West	20	3	15%	22	9	41%
All Projects	345	90	26%	302	87	29%

Overall, 49 percent of the sewer projects funded by FmHA in the nine states also received EPA funds. The EPA participation rate in the nine states is nearly twice the rate in the remaining states (25 percent).

Of all FmHA funds going into sewer projects in the nine states, 56 percent went to projects receiving EPA assistance — more than twice the rate of FmHA funding assistance in jointly funded projects in the remaining states (26 percent).

What factors contribute to the level of EPA and FmHA assistance in the nine states?

Several states offered *supplemental funding* during the Construction Grants program, and some targeted funds to rural and low-income communities to address their facility needs. Illinois and Ohio have both operated wastewater facility funding programs and have been aggressive in attempting to address the needs of both rural and urban communities. The number of

sewer projects funded in these two states and the other states listed may be attributed to the availability of EPA and state funds for rural facilities.

Kentucky, Tennessee and North Carolina state and regional programs encouraged the development of rural sewer facilities by offering *technical assistance and training* to communities. Technical assistance providers work with state regulators and funding agencies to target funding to rural needs. This may contribute to the level of sewer project funding in these states.

Minnesota's water pollution control agency has established a working relationship with FmHA. The Minnesota case study in the Appendix shows that coordination between the two agencies, coupled with a *strong enforcement program*, has resulted in a large share of 5 percent loans for sewer projects in the Minnesota FmHA program.

Comparison of EPA and Non-EPA Sewer Projects

In an effort to determine the potential impact that the termination of the Construction Grants program may have on FmHA sewer funding, this analysis compares projects that received both EPA and FmHA funding with those that received no EPA funding.

Type of Project Funded: Until FY 1988, FmHA data used specific project categories for sewer collection and treatment projects. Data for FY 1985 - FY 1987 show that more than two-thirds of all FmHA sewer collection projects did not receive EPA assistance. Thus FmHA funding filled a critical funding gap created by restricted sewer collector eligibility in the Construction Grants program. Because funding for sewer collectors is also restricted in SRFs, it is likely that rural and rural poor communities will continue to seek FmHA funding for such projects.

Size of Projects Funded: The most significant difference between EPA-FmHA projects and FmHA-only projects is in the size of projects involved. *The average FmHA project with EPA funding is consistently two to four times as large as that without EPA funding.* That is not entirely surprising, because larger projects can be expected to require assistance from more than one funding source; nevertheless the difference is striking. In this time period, 39 percent of all FmHA projects that did *not* include EPA assistance had total costs under \$250,000. Among those that *did* have EPA funding, 29 percent cost \$2.5 million or more.

Text continues on page 102

Table 9
AVERAGE SIZE OF FmHA SEWER PROJECTS BY RELATIVE INCOME

Relative Community Income	Fiscal 1985		Fiscal 1986	
	Without EPA Funds	With EPA Funds	Without EPA Funds	With EPA Funds
	Avg. Size	Avg. Size	Avg. Size	Avg. Size
Under 80% State NMHI	\$471,400	\$1,242,000	\$586,500	\$1,589,600
80%-100% State NMHI	\$530,900	\$1,527,400	\$830,900	\$2,342,900
Above State NMHI	\$465,700	\$2,327,200	\$899,300	\$1,488,800
All Projects	\$486,000	\$1,634,300	\$737,400	\$1,820,700
Median Size#	\$286,800	\$984,600	\$397,500	\$1,318,200

Relative Community Income	Fiscal 1987		Fiscal 1988	
	Without EPA Funds	With EPA Funds	Without EPA Funds	With EPA Funds
	Avg. Size	Avg. Size	Avg. Size	Avg. Size
Under 80% State NMHI	\$495,100	\$1,233,200	\$638,500	\$2,713,100
80%-100% State NMHI	\$698,300	\$2,843,000	\$832,500	\$2,635,800
Above State NMHI	\$762,700	\$3,100,200	\$936,700	\$1,894,000
All Projects	\$616,200	\$2,301,300	\$791,300	\$2,475,800
Median Size#	\$382,700	\$1,338,700	\$447,200	\$1,821,400

Table 10
DISTRIBUTION OF FmHA SEWER PROJECTS BY RELATIVE INCOME

Relative Community Income	Fiscal 1985				Fiscal 1986			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Under 80% State NMHI	126	46%	71	40%	106	43%	43	37%
80%-100% State NMHI	74	27%	57	32%	100	40%	40	34%
Above State NMHI	74	27%	49	28%	41	17%	33	28%
All Projects	274	100%	177	100%	247	100%	116	100%
Mean Relative Income	87.9% NMHI		87.9% NMHI		83.4% NMHI		88.6% NMHI	
Median Rel. Income#	83.0% NMHI		86.1% NMHI		83.5% NMHI		87.5% NMHI	

Relative Community Income	Fiscal 1987				Fiscal 1988			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Under 80% State NMHI	118	46%	33	37%	72	33%	31	36%
80%-100% State NMHI	90	35%	40	44%	104	48%	34	39%
Above State NMHI	47	18%	17	19%	39	18%	22	25%
All Projects	255	100%	90	100%	215	100%	87	100%
Mean Relative Income	84.4% NMHI		87.4% NMHI		86.9% NMHI		91.5% NMHI	
Median Rel. Income#	82.1% NMHI		86.0% NMHI		86.8% NMHI		87.4% NMHI	

NMHI = Nonmetro Median Household Income.
Calculated median.

Table 11
DISTRIBUTION OF FmHA SEWER FUNDS BY RELATIVE INCOME

Relative Community Income	Fiscal 1985				Fiscal 1986			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Under 80% State NMHI	\$42,345	42%	\$20,624	30%	\$48,846	37%	\$16,946	30%
80%-100% State NMHI	\$31,652	31%	\$22,497	32%	\$57,427	43%	\$25,710	46%
Above State NMHI	\$27,917	27%	\$26,726	38%	\$26,917	20%	\$13,522	24%
All Projects	\$101,914	100%	\$69,846	100%	\$133,190	100%	\$56,177	100%

Relative Community Income	Fiscal 1987				Fiscal 1988			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Under 80% State NMHI	\$47,932	41%	\$14,830	22%	\$33,596	25%	\$33,144	43%
80%-100% State NMHI	\$45,104	39%	\$35,192	53%	\$70,412	53%	\$29,445	38%
Above State NMHI	\$23,226	20%	\$16,066	24%	\$28,679	22%	\$14,134	18%
All Projects	\$116,262	100%	\$66,088	100%	\$132,688	100%	\$76,723	100%

NMHI = Nonmetro Median Household Income.

Because there are numerous rural communities with significant rural wastewater facility needs, it is likely that demand for FmHA sewer project funding will increase with the termination of the Construction Grants program. Growing demand for FmHA funds is likely to exceed state allotments, particularly if rural applicants seek the same level of FmHA funding that has been available in Construction Grants.

FmHA and EPA Share of Costs: It is not surprising that among jointly funded projects, FmHA funding contributes a lower share of sewer project funding than EPA Construction Grants, given the magnitude of EPA Construction Grants allocations (about ten times those of FmHA grant allocations).

The FmHA share averages between 28 to 36 percent of project costs among jointly funded sewer projects (see Table 12, next page). The average FmHA share increased between FY 1985 and FY 1988, with increases most pronounced in the highest income communities but also significant in the lowest income communities. In most years, FmHA picked up the smallest

share of funding in higher income communities, but in FY 1988 the average FmHA share of funding for higher income communities increased to 41 percent. Much of this shift may be due to the sharp decline in the average size of sewer projects for the higher income group (resulting in a given amount of funding representing a larger share of the total).

Table 12

AVERAGE FmHA and EPA SHARE OF FUNDING BY RELATIVE INCOME

Relative Community Income	Fiscal 1985		Fiscal 1986	
	Without EPA Funds	With EPA Funds	Without EPA Funds	With EPA Funds
	Avg. Share	Avg. Share	Avg. Share	Avg. Share
FmHA Share:				
Under 80% State NMHI	78.3%	27.0%	81.1%	32.4%
80%-100% State NMHI	78.1%	32.6%	81.5%	31.7%
Above State NMHI	85.8%	23.0%	81.8%	30.8%
All Projects	80.3%	27.7%	81.3%	31.7%
EPA Share:				
Under 80% State NMHI		62.9%		58.0%
80%-100% State NMHI		58.6%		50.8%
Above State NMHI		65.9%		54.2%
All Projects		62.4%		54.4%
Relative Community Income	Fiscal 1987		Fiscal 1988	
	Without EPA Funds	With EPA Funds	Without EPA Funds	With EPA Funds
	Avg. Share	Avg. Share	Avg. Share	Avg. Share
FmHA Share:				
Under 80% State NMHI	81.7%	35.7%	79.1%	37.0%
80%-100% State NMHI	71.9%	38.9%	80.9%	33.0%
Above State NMHI	82.3%	32.5%	89.0%	41.0%
All Projects	78.4%	36.5%	81.8%	36.4%
EPA Share:				
Under 80% State NMHI		51.7%		52.2%
80%-100% State NMHI		49.1%		56.6%
Above State NMHI		51.3%		50.3%
All Projects		50.5%		53.4%

NMHI = Nonmetro Median Household Income

Between FY 1985 and FY 1987, there was a decline in the EPA share of jointly funded projects, although EPA still contributed the majority of project funding. In FY 1988, the EPA share increased slightly.

The increasing share of FmHA funding among jointly funded projects may be attributable to the need for additional funding assistance with the decline in Construction Grants share from 75 to 55 percent following the 1984 Clean Water Act amendments.

Type of FmHA Assistance: Table 13 provides a comparison of FmHA sewer projects with and without EPA funding in terms of the distribution of FmHA assistance by loan or grant type. In the first three years of the period studied, a larger share of FmHA assistance was in grant funds in the projects that did not receive EPA funding. This pattern is logical, since EPA-FmHA applicants were likely to have lower overall financial requests and less need for grant funding because they had obtained 55 percent Construction Grants assistance.

Table 13
DISTRIBUTION OF FmHA SEWER FUNDS BY TYPE OF ASSISTANCE

Type of Funding	Fiscal 1985				Fiscal 1986			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Grants	\$33,925	33%	\$8,833	13%	\$34,968	26%	\$7,942	14%
Loans at 5 Percent	\$10,592	10%	\$8,579	12%	\$17,593	13%	\$13,369	24%
Loans at Inter. Rate	\$26,176	26%	\$18,939	27%	\$53,577	40%	\$18,394	33%
Loans at Mkt. Rate	\$31,221	31%	\$33,496	48%	\$27,051	20%	\$16,472	29%
All Assistance	\$101,914	100%	\$69,846	100%	\$133,190	100%	\$56,177	100%

Type of Funding	Fiscal 1987				Fiscal 1988			
	Without EPA Funds		With EPA Funds		Without EPA Funds		With EPA Funds	
	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent	(\$000s)	Percent
Grants	\$32,084	28%	\$9,416	14%	\$32,461	24%	\$17,438	23%
Loans at 5 Percent	\$25,188	22%	\$15,193	23%	\$26,618	20%	\$24,177	32%
Loans at Inter. Rate	\$36,877	32%	\$23,713	36%	\$46,070	35%	\$21,539	28%
Loans at Mkt. Rate	\$22,113	19%	\$17,766	27%	\$27,538	21%	\$13,569	18%
All Assistance	\$116,262	100%	\$66,088	100%	\$132,688	100%	\$76,723	100%

A larger share of FmHA assistance was in market rate loans in the projects with EPA funding than in those without. This pattern reflects the increasing share of jointly funded projects in higher income communities. The increasing number of sewer projects serving higher income communities may be related to their comparatively greater ability to obtain Construction Grants funding.

In addition, communities with higher incomes may have been able to afford to complete sewer projects by borrowing from FmHA to cover 45-percent local share costs. Lower income communities, on the other hand, may have needed additional grant assistance from FmHA. It is likely that sewer project *grant* requests from lower income communities exceeded state FmHA grant allotments, while loan requests from higher income communities did not.

In FY 1988, this situation was sharply reversed. The projects with EPA funding had almost as large a share of assistance in grant form as did those with only FmHA funding. Those with EPA funding received a smaller share of their assistance in the form of market rate loans than was the case for projects that did not receive EPA funding.

The average size of sewer projects in lower income communities increased to \$2.7 million in FY 1988, compared to an average of between \$1.2 million and \$1.6 million in FY 1985 through FY 1987. The share of EPA grant participation in lower income sewer projects declined in FY 1988. Lower income communities' growing dollar needs and declining levels of EPA assistance may account for the increasing FmHA grant share in jointly funded projects in FY 1988.

The average size of higher income jointly funded sewer projects decreased in FY 1988. As a result, higher income communities were likely to have submitted lower dollar requests to FmHA. Such a reduction would have contributed to a decline in the volume of FmHA market rate loans among jointly funded sewer projects.

In FY 1985, 1986, and 1987, a larger share of FmHA assistance went to lower income communities in projects without EPA funding than in those where both agencies assisted. But in FY 1988 this pattern was reversed. The earlier pattern may reflect the ability of higher income communities to obtain Construction Grants, borrowing from FmHA for local share costs. Grant eligibility and grant need contribute to the FmHA-only sewer project portfolio, particularly since lower income communities have historically been less successful than higher income communities in achieving Construction Grants priority. Lower income communities needing funding for sewage collection projects — a restricted funding eligibility in the Construction Grants

program — would also contribute to the higher share of grants and lower income community participation among FmHA-only recipients.

There are several reasons why FY 1988 shows an increase in the number of jointly funded lower income community sewer projects. SRF staff explain that in the waning years of the Construction Grants program, lower priority projects serving rural areas had reached funding priority. Rural projects were pushed through the Construction Grants process to ensure their completion before the termination of the program. Staff helped rural community projects to leverage funding from other sources, particularly when projects served lower income residents. Finally, an increase in lower income projects may have been the result of increased enforcement actions to ensure compliance with the NMP deadline.

Summary

Sewer projects account for slightly less than half of all FmHA loans and grants for water and waste disposal facilities. A greater number of sewer projects have received FmHA funding in the Northeast than in the South. In general, sewer projects are more likely to be located in lower income communities than are water projects. Sewer projects account for a greater share of 5 percent loans but receive a smaller share of FmHA grant funding than water projects.

The existence of EPA Construction Grants has a bearing on the characteristics of FmHA-funded sewer and water projects. Nearly a third of all FmHA sewer projects also received EPA assistance, averaging 55 percent of project costs. In the absence of a comprehensive federal drinking water funding program, FmHA funds meet a significant need for communities that require subsidies to obtain access to safe drinking water.

The regulatory framework of the Construction Grants program also influences FmHA sewer projects. Restricted EPA funding for collector sewers certainly contributed to the overall number of FmHA sewer projects, whether or not such projects served poor communities. The consistent and increasing level of jointly funded projects is apparently the result of Clean Water Act compliance schedules, reductions in Construction Grants funding share, and the pending end of the Construction Grants program.

Further, the changing characteristics of jointly funded projects suggests that affordable funding in the form of low-interest loans and grants is necessary to address the wastewater facility needs of lower income communities. The increasing share of lower income community sewer projects and increasing level of FmHA grants among jointly funded projects shows that a

significant share of grant funding may be necessary to ensure wastewater project affordability for rural low-income communities.

Since the average size of sewer projects serving lower income communities shows an increase over the four-year period, the loss of Construction Grant funding may reduce the likelihood that such communities can complete sewer projects without additional grant assistance from FmHA and other funding sources.

Evaluating the Potential Impact of the SRF Transition

It is unclear whether the transition to SRF loans will increase demand for sewer project funding from FmHA. To a great extent, the level of demand has been and will continue to be a result of water pollution control enforcement action. FmHA sewer project funding demand will certainly increase if states put pressure on rural and rural low-income communities to address their noncompliance problems.

Several characteristics of SRFs may contribute to demand for FmHA sewer project funding:

- 1) *Accessibility of FmHA funding:* preliminary funding requirements in the FmHA program are less costly and require less technical expertise than requirements of SRF loans;
- 2) *Different competition for funding:* FmHA funds may be obligated only to rural communities, while many SRF loan programs do not provide any set-aside for rural or rural poor communities. Potential FmHA applicants must compete for SRF loans against larger municipalities whose financial needs may consume the entire SRF loan volume;
- 3) *Loan affordability:* FmHA loans may result in a more affordable debt service for rural low-income communities than SRF loans, depending in large measure on SRF loan interest rate structure. Some SRFs offer loans at fixed interest rate while FmHA loan interest rates are based on ability to pay. Further, FmHA offers loans for 40-year terms, while the maximum loan term for SRFs is 20 years. The difference in term can greatly affect annual debt service rates;
- 4) *Availability of grants:* FmHA applicants may obtain grants of up to 75 percent of project costs (although the level of grants awarded rarely reaches this level), while SRFs do not offer grants — although states may offer a companion grant or subsidized loan program;

5) *SRF restrictions*: FmHA funding may be used for sewage collection and treatment projects. Sewage collectors, a high cost undertaking in rural areas, have restricted funding eligibility in the SRF program.

It is likely that unsewered communities, in particular, will seek FmHA funding, based on needs data and SRF interviews showing that there is an outstanding need for sewage collection and treatment facilities among rural poor communities. In addition, rural applicants that could not afford local share costs during the Construction Grants program are likely to seek FmHA funds, especially if enforcement action is taken against facilities with inadequate treatment.

There may be an increase in demand for FmHA grants to supplement SRF loans among rural low-income communities that are able to obtain SRF loans at affordable interest rates. Grant-only demand is possible because SRF borrowers may meet FmHA debt-service requirements and therefore be eligible for grant subsidies to complete projects without raising debt service to an unaffordable level. The working relationship and level of cooperation between state FmHA and SRF staff may have a role in influencing FmHA's willingness to obligate grant-only funding to complete SRF projects rather than using grants to complete FmHA-funded projects.

Will the FmHA Water and Waste Disposal program become the primary source of rural poor community wastewater facility financing as a result of the transition to SRF loans for wastewater facility projects?

Because of FmHA's significant role as a funding source for drinking water projects serving rural poor communities, it is unlikely that sewer projects will come to dominate the FmHA portfolio. (FmHA funded 1,923 water projects totalling \$102.1 million in loans and grants between FY 1985 and FY 1988.) Requests for water project financing may actually increase in the next five years as rural water systems undertake capital improvements mandated by the 1986 Safe Drinking Water Act.

The higher average cost of sewer projects may well stress FmHA loan and grant allocations, particularly if there is increasing demand for FmHA grants to finance sewer projects. The average cost of FmHA sewer projects *without EPA funds* was nearly 20 percent higher than FmHA water projects, which averaged \$531,982 during the four-year period. Among jointly funded sewer projects, the average FmHA share was greater than the average water project award and the overall project size was more than twice that of non-EPA funded sewer projects. In addition to grant availability, anecdotal evidence suggests that FmHA staff may prefer to fund a substantial number of drinking water projects — because FmHA loan and grant portfolios show a lower cost per rural poor household served than do sewer projects.

CHAPTER 6

▼

THE ROLE OF STATE BOND BANKS

Already an important source of tax-exempt financing for many small communities, bond banks can offer some key advantages over state revolving funds — when conditions are right.

DEBT FINANCING MECHANISMS SUCH AS BOND BANKS may assume increasing importance in light of reduced federal public works subsidies and the transition to revolving loan programs for wastewater facilities. To the extent that state bond banks are able to meet the wastewater facility financing needs of higher-income communities, lower-income communities may be able to avail themselves of funding subsidies in other programs such as FmHA. Assessing the affordability of bond bank financing may thus provide insight into the extent to which water and sewer project funding needs of rural and poor rural communities may be addressed by this financing mechanism. This chapter provides information on the characteristics of state bond bank borrowers, the savings achieved by bond bank participation, and the role bond banks have played in water and sewer facility financing.¹

Currently there are 13 state bond banks that issue debt on behalf of municipalities. Since 1970, state bond banks have been established in Vermont, Maine, North Dakota, New Hampshire, Alaska, Puerto Rico, Indiana, Illinois, Arkansas, South Carolina, Oregon, Mississippi and Nevada.²

¹ The information in this chapter is based on telephone interviews with representatives of state bond banks and state financing authorities and on a review of literature and legislation concerning municipal finance and credit enhancement.

² As this report was being prepared, the Mississippi Development Bank and the Oregon Economic Development Department had not yet issued bonds for municipal projects; however, information on proposed bond bank operations in these states is included in this chapter.

Bond banks may operate as separate authorities, sometimes as a component of State Leagues of Cities and Towns or Municipal Associations. Sub-state entities have been established by state legislatures to provide a vehicle for tax-exempt financing when state laws prohibit the state from incurring debt. This chapter includes information obtained from financing authorities in West Virginia, Texas, Illinois, Kentucky, Tennessee, South Carolina and Utah. Several also offer grants and direct loans, but function in a similar manner to state bond banks.

This chapter also assesses the impact of federal tax legislation on bond bank financing. In telephone interviews, state bond bank staff discussed examples of obstacles associated with tax reform and innovations that have been developed in light of changes in bond financing regulation.

Background

State bond banks and financing authorities have been an important source of tax-exempt water and sewer facility financing for many small communities and public service districts. Since 1972, more than half of all bond bank financing, totalling more than \$200 million, has been used for municipal water and sewer system rehabilitation and construction. Bond banks provide a way for small and medium public entities that can afford debt repayment to finance water and sewer facility improvements, school rehabilitation, and other community facility projects. Bond bank issues also offer an advantage for many rural communities because facility needs such as collector sewers are eligible costs. To a lesser degree, these sources have also enabled some small and medium size communities to construct new water and sewer facilities.

Bond bank issues have frequently been used for the local-share costs of sewer system construction projects that received EPA Construction Grants. In fact, several bond banks were established specifically for the purpose of assisting small unrated communities with relatively low borrowing needs to complete wastewater projects at reasonable cost. West Virginia, Indiana, New Hampshire, Texas and Kentucky issued bonds for the local share of numerous sewer projects funded by federal grants.

Sewer bonds issued by the New Hampshire Bond Bank were backed by a state guarantee authorized by state statute. As a result, bond issues for sewer projects received a higher bond rating than other bond bank issues. During the past ten years, many of New Hampshire's small communities with no or low bond ratings obtained financing through the state bond bank for sewage treatment plant facilities.

In assessing the impact of bond bank financing in the broader context of facilities financing, it is useful to consider that municipalities of fewer than 5,000 persons received \$166.4 million during the first year of the EPA Construction Grants program — but had more than \$131 million in local share costs³. Although bond banks filled an important gap for some communities, there were many more that obtained local-share financing elsewhere.

Most state bond banks were established specifically to increase access to tax-exempt credit for small, unrated communities. In some states — such as Indiana, Illinois and Vermont — nonprofit associations and utility districts are eligible for and have financed projects through state bond banks. However, most states prohibit issuing tax-exempt financing for private utilities, in part because these systems lack taxing power and because the 1986 Tax Reform Act restricts the right of bonding authorities to fund private entities.

Bond Banks and Financing Authorities

Bond banks are structured in one of two ways:

- 1) The bond bank issues its own debt in the national bond market, and then uses the proceeds to purchase bonds from municipalities; or
- 2) The bond bank pools bond issues from several communities and sells one large issue on the national market.

The 1986 Tax Act restricts but does not eliminate the first approach — under which a bond bank issues its own debt. State statutes may also restrict the total amount of debt that bond banks can issue, thereby effectively restricting the size and/or number of projects that may be financed.

Bond banks may issue or purchase general obligation or revenue bonds, depending on state laws and authorizing statutes. General obligation bonds issued by the bank are backed by a state pledge, since they are tax-based. The state pledge is a guarantee that, in the event of default, state taxes may be used to repay debt. Accordingly, general obligation bonds are considered to be better risks than revenue bonds.

³ Data was derived from the Grants Information Control System FY 1973—1990, U.S. Environmental Protection Agency, Office of Municipal Pollution Control.

Revenue bonds are backed by a revenue pledge. In addition, bond banks are often required to establish a debt service reserve, covering the sum of one year's principal and interest payments, to secure revenue bond issues and sell revenue-tied debt. Communities are required to borrow an additional 10 to 25 percent of capital costs for loan collateral, referred to as coverage, as additional security for revenue bond issues.

State revolving loan funds offer some of the same financing advantages as bond banks. Title VI of the 1987 Clean Water Act authorizes the establishment of SRFs empowered to guarantee, insure and refinance loans — attributes common to bond banks. Because these revolving funds are being capitalized with interest-free federal grants, they can provide interest-rate subsidies without increasing tax assessments.

To increase the amount of project financing available, some states have leveraged state revolving funds by selling bonds backed by a security such as the federal SRF capitalization grant or the state's debt service reserves. Leveraging an SRF is essentially the same as issuing a bundled pool of municipal issues, and enables a state to take advantage of a security provided by the federal government — the federal capitalization grant. In states without state bond banks or financing authorities, there may be no bond-pooling mechanism with which to leverage additional tax-exempt credit.

SRF leveraging can ultimately provide the same benefits to small unrated communities as state bond banks: access to tax-exempt financing at better rates than would otherwise be available. Leveraging is no panacea, however, since SRFs that leverage may choose to exclude small or unrated communities. On the other hand, some states help communities with little credit access by including them in a pool that includes communities with higher ratings. Maryland, for example, was able to diversify credit risk by including non-rated communities in bond issues used to leverage its SRF. This approach enables communities with limited market access to qualify for low-interest loans for capital projects.

In some states, state bond banks are administering federally capitalized SRFs. This allows states to enhance state revolving fund administration by taking advantage of the financing expertise and marketing capability of bond bank staff. However, state bond bank SRF administrators may structure applicant review criteria and loan interest rate terms to minimize the default risk and maximize the repayment stream. Such terms may not be affordable to rural or rural low-income communities.

Comparing the advantages offered by bond bank and state revolving fund financing may help analysts to identify whether rural infrastructure financing needs can be met by either or both of these financing mechanisms,

or whether other financing mechanisms are required to assure that needed infrastructure projects serving low-income rural communities will be able to find financing.

■ *Capitalization Funds:* Capitalization of bonding authorities, whether state bond banks, financing authorities or state revolving funds, may come from "debt-free" sources or debt-related sources. A debt-free source of capitalization increases the advantages and savings that can be offered by the bonding authority, while a debt-related source restricts the benefits that can be offered.

Debt-free capitalization monies, such as direct appropriations, allow the bond bank to offer greater savings to borrowers such as absorbing up-front costs, issuance fees or providing interest-rate subsidies. Substantial federal capitalization totalling 80 percent of SRF loan volume enables states to offer interest-rate subsidies, since debt repayment may involve only the remaining 20-percent state match.

Several state bond banks have obtained "debt-free" working capital from arbitrage earnings, or profits realized from the difference between the interest rate paid on tax-exempt bonds and the rate earned on investments made with the proceeds of those bonds. The 1986 Tax Reform Act restricts the amount and use of arbitrage earnings, and forces some bond banks to charge processing fees to cover operating costs. Banks established prior to the 1986 federal tax changes, however, can use capital reserves from investment earnings for operation, administration and debt service reserves.

States that must borrow to capitalize the bond bank, whether from bond issues or other loans, may have less flexibility to cover up-front costs or provide required securities. Although Alaska's bond bank was capitalized with an \$18-million state appropriation disbursed over a three-year period, the state bond bank is required to repay state capitalization monies to the state general fund. The Alaska bond bank uses interest earnings on capitalization funds to repay the appropriation. This "loss" of interest earnings limits the bond bank's ability to offer savings to borrowers.

■ *Debt Service Reserve:* Federal tax law now requires bond banks to maintain a 10-percent debt service reserve — that is, 10 percent of anticipated debt service including principal and interest — as security for bond issues. These reserve funds have been financed through assessments on participating municipalities, appropriations, grants and loans, special taxes or fees, or some combination thereof.

Some bond banks, including the Indiana Bond Bank, maintain larger reserves, equal to the annual debt service of the bank's total loan portfolio.

Federal tax law now restricts yields obtained from investment earnings on bond proceeds. These earnings had previously been used to increase the size of the debt service reserve. This change may reduce the ability of some bond banks to maintain federally and/or state mandated debt service reserves, reducing the security banks can offer to the market.

Role of Tax-Exempt Financing for Municipal Water and Sewer Facility Financing

Tax-exempt municipal bonds allow water and sewer systems to raise funds for capital improvements through the bond market. The importance of the municipal bond market as a source of infrastructure finance has increased as federal grants have been cut back — and as states have found themselves struggling with reduced revenues in the wake of a sustained recession and, in some states, economic stagnation. The costs and complexity of bond financing have also increased as a result of the Tax Reform Acts of 1984 and 1986. These federal statutes have had and will continue to have a major impact on governments that rely on tax-exempt bond financing for capital improvements. (The impact of tax-reform legislation is discussed in following sections.)

Municipalities may issue general obligation or revenue bonds, depending on state restrictions. General obligation bonds are repaid with municipal taxes, and are backed by the full faith and credit of the local government. Revenue bonds are repaid with dedicated user rates or other sources of income, including the revenues associated with the capital project.

Many small rural communities — particularly those with populations below 5,000 — have little or no access to the municipal bond market. They rarely have a bond rating and do not have the ability to sell their debt in the market because they have not previously obtained tax-exempt bonds and have little or no outstanding debt. As with individuals, the absence of a credit rating is not necessarily synonymous with being a poor credit risk. However, most small communities are able to obtain bonds only at higher interest rates because of their limited need for capital finance and their relatively infrequent need to borrow.

All borrowers must pay up-front costs to market bond issues, regardless of the amount of capital financing needed. Bond marketing, underwriting, bond counsel and financial fees are generally higher at least in percentage of issue terms for small issues since the complexity of the task does not diminish with the size of the issue.

The available data confirm that the smallest communities pay the highest relative cost to borrow capital. For communities under 10,000 in population, 22 percent are likely to have difficulty obtaining revenue bonds or borrowing from a commercial bank. For communities under 2,500, 28 percent may be unable to obtain financing.⁴

Local governments with populations under 10,000 are also likely to have the greatest difficulty obtaining general obligation bonds. EPA estimates that 17 percent of such communities and 21 percent of communities under 2,500 persons may be unable to issue general obligation debt because of prohibitive costs.⁵

Savings Achieved by Bond Banks

Bond banks can offer two significant benefits to small unrated communities: access to tax-exempt credit and ease of obtaining credit. Some state bond banks, including those in Texas and South Carolina, specifically target municipalities that cannot obtain tax-exempt credit at "reasonable" interest rates, or that have no bond rating and will be unable to finance capital projects without the credit enhancement offered by the bond bank.

In addition, bond banks can offer a range of direct cost savings, including:

- *Reduced issuance costs:* Obtaining bond financing ordinarily requires the services of a bond counsel, a financial advisor and, in some cases, an underwriter. Unrated communities may also have to pay rating agencies to market bond issues. Bond banks help communities to realize issuance cost savings through economies of scale. Most bond banks streamline the issuance process by using standardized forms to prepare issues for market, and many employ their own bond counsel, financial advisors, and underwriters.

⁴ *Municipalities, Small Business and Agriculture: The Challenge of Meeting Environmental Responsibilities.* U.S. Environmental Protection Agency, Office of Policy, Planning and Evaluation, September 1988. This study examined the ability of municipalities to obtain financing for the additional capital expenditures required for environmental regulations, including the 1986 Safe Drinking Water Act amendments and 1987 Clean Water Act. The ability of small communities to obtain revenue bonds was assumed to be contingent upon limiting the increase in user charges to households to a given level of the household's gross annual income (1 percent, 1.25 percent and 2 percent). The ability of a municipality to obtain general obligation bonds was assumed to be contingent upon the municipality's existing and new environmental debt service obligations relative to the municipalities 1986 total general revenues and the municipality's total 1986 market value of assessed taxable property.

⁵ Ibid.

Economies of scale are achieved by pooling many small offerings into one large bond issue, with the cost of bond issuance spread among several borrowers.

Bond banks may fully absorb issuance costs, at no fee to borrowers; or they may charge a flat fee for these services, or a fee based on the size of each issue relative to the entire issue. Regardless of the fee structure, all bond bank officials maintain that communities achieve savings in time and issuance costs by obtaining finance through the bond bank. In fact, the North Dakota bond bank will not accept a borrower unless issuance savings will be achieved by bond bank participation.

Additional recordkeeping and reporting requirements imposed by the Tax Reform Act of 1986 have increased the costs of issuing tax-exempt credit. Because of these changes and restrictions on investment earnings, some bond banks — for example, in Maine and New Hampshire — recently began charging fees to cover issuance costs.

Following are examples of the types of issuance fee structures used by state bond banks:

- Illinois charges users a flat fee for bond issuance costs;
- Arkansas distributes issuance costs among all participants based on the size of each participants' issue relative to the overall pool size;
- Indiana, Nevada, North Dakota and Oregon charge no issuance fees;
- Municipalities are responsible for legal fees as a proportion of issuance costs in Maine and Alaska.

The Alaska Bond Bank estimates that communities save between \$30,000 and \$40,000 in financial advisor costs by borrowing through the bank. All state officials interviewed agreed that issuance savings are substantial, but few were able to provide specific savings estimates.

Given the short turnaround to obtain financing, bond banks may offer a more cost-effective financing alternative than federal funding programs with considerable up-front requirements. Bond banks, for example, do not require participants to prepare technical engineering studies or environmental impact assessments. Savings may be considerable for rural communities when comparing state bond banks to federally capitalized SRFs and FmHA, where

delays of more than a year between initial application and final funding obligation are common.

■ *Reduced borrowing costs:* Bond banks are able to issue bonds at a lower interest rate to borrowers and at lower risk to investors than rural or rural poor communities because of several credit enhancement features. Banks that are backed by a state moral obligation pledge, especially when the state has a high bond rating, can offer important security to investors. In some states, this security is enhanced by state intercept authority, meaning that state revenues designated for local communities will be used for debt repayment on projects in the event of imminent default.

Other securities offered by bond banks, including debt service reserves, state guarantees, bond insurance, and pledged revenues or tax repayments from municipalities, reduce the risk of default for bond issues. In some cases, state authorizing legislation requires bond banks to maintain substantial debt service reserves, thereby increasing the marketability of bond bank issues. The Indiana Bond Bank maintains a reserve equal to one year's principal and interest requirements.

One of the most important securities is the typical bond bank's track record of sound financial management, reliable bond repayments, adequate user rate structures that cover operation, maintenance and depreciation, and few if any defaults. Some state bond banks have higher credit ratings than state governments, although most banks maintain a rating at about one-half of one credit notch below the state rating.⁶ State bond bank issues, particularly for general obligation bonds, present a better default risk than the risk associated with small issues (by dollar amount), issues from unrated or lower rated municipalities, and issues from small public districts.

Pooling debt creates an advantage to investors by diversifying credit risk, particularly if the bond bank includes both large and small municipalities of various credit ratings in the pool. This also allows bond banks to obtain lower interest rates and better terms than many small communities.

It is difficult to quantify the reduction in interest rates made possible by bond pooling. Bank officials point out that they seldom know what the terms would have been if participating municipalities had financed projects on their own. Savings estimates are made more difficult by the fact that many of the municipalities that participate in bond bank issues have not borrowed from the tax-exempt market previously. As a general rule,

⁶ Peterson, John, et al. *Credit Pooling To Finance Infrastructure*, Research Report, Government Finance Research Center, Washington, DC. 1988.

however, financial analysts suggest that, without a bond bank, many small unrated borrowers and some nonprofit associations might only be able to obtain short-term loans (10 years or less) at rates slightly below prime.

State bond bank staff agree that municipalities typically borrow through the bond bank at interest rates slightly below market rate. Staff estimate that interest rate savings vary from .50 percent to more than two percent interest with loan terms no greater than 20 years. (The Arkansas Soil and Water Commission provides financing for 30-year terms, the only exception to this limit.)

Interest rate savings may, of course, be calculated on a case-by-case basis, when all the relevant factors — the creditworthiness of the borrower, market rate, market conditions and so on — are known. For example, one Alaska community obtained a 7-percent loan through the state bond bank, having been offered a 9.2-percent rate in the bond market.

■ *Increased access to credit:* Bond banks are able to market tax-exempt debt for small and unrated communities because banks can reduce default risks associated with these issues. Security provisions, including state moral obligation pledges, state guarantees, debt service reserves, and track record reduce the investment risk of small issues.

The Texas Water Development Board only lends to public entities that cannot obtain credit on their own. South Carolina primarily obtains financing for small municipalities without access to the market, or larger communities with small projects in order to reduce borrowing costs.

Banks have the ability to size issues to make them attractive to investors. "Small" issues of less than \$500,000 to \$1 million are not by themselves cost-effective to the market and generally carry a higher interest credit. Pooling issues of this size, or pooling small issues with larger issues, results in an attractively sized investment at better interest rates. The Arkansas Soil and Water Commission obtains financing for issues ranging from \$100,000 to \$1 million by pooling bonds. Issues average between \$500,000 and \$1 million in Maine Bond Bank pools.

■ *Short-term or interim financing.* Where necessary and appropriate, bond banks are able to provide short-term financing to reduce cash flow problems for municipal projects. Banks may issue bond anticipation notes for recipients of FmHA Water and Waste Disposal Loans prior to disbursement from FmHA. Funds for short-term financing are available from several sources, including bond bank capitalization monies, investment earnings from bond proceeds, and loan repayments.

Bond banks in Vermont, Kentucky, Tennessee and West Virginia provide interim financing for water and sewer projects. This feature allows communities to expedite facility construction.

Characteristics of Bond Bank Beneficiaries

State bond bank staff were surveyed to determine whether bond bank issues provided rural poor communities with access to tax-exempt financing for water and sewer projects. Nearly all state staff described the characteristics of bond bank beneficiaries in terms of population size or type of entity, whether local government or public district. Staff provided no specific information on the income level of bond participants.

Rural and small communities represent at least half of all bond bank beneficiaries in each interviewed bonding authority. Some states, including West Virginia, Arkansas, Tennessee, Texas, Kentucky, Alaska report that most of their bond issues benefit rural communities. Oregon's bonding authority has a specific funding distribution plan, with a third of all loans to be issued to rural communities, a third to urban communities and the remaining third to either.

Public entities: Bond banks primarily obtain tax-exempt financing for local and county governments, and districts with taxing power or a revenue-generating base. Use of this taxing power generally requires a bond referendum, while the revenue commitment does not.

Size of individual issues. Borrower amounts range from \$100,000 to \$80 million in bond bank issues, and tend to be under \$2 million among banks that target small communities.

Community size. Most bond banks report that projects serving 1,000 to 10,000 persons are typical beneficiaries of bond bank financing. Although projects serving as few as 100 customers have received financing through the Indiana Bond Bank, most bond banks agree that populations of this size are very high risks because of their limited debt service capability.

Financial management capability. Bond banks are able to obtain financing for unrated communities and communities with no credit history when communities are able to demonstrate sufficient revenue structure and evidence of sound financial management practices. Some banks provide assistance to communities to improve budget management; others assist in restructuring user rates to ensure that adequate revenues are available for repayment and plant depreciation.

Water and sewer facilities. Bond banks in Kentucky, Texas, New Hampshire, Tennessee, West Virginia, Indiana, North Dakota, Illinois, Arkansas, Nevada and South Carolina report that at least 50 percent of their bond issues have been used for water and sewer facility projects. Several note that bonds were used to supplement projects to which grants and/or low-interest loan funds had been committed.

Obstacles to Bond Bank Participation

Absence of taxing power: Entities that lack taxing power, including some public districts, nonprofit associations and rural utilities may be ineligible for tax-exempt financing by state law and therefore cannot participate in bond bank financing. Exceptions include the Indiana Bond Bank, which obtains financing for rural utilities, and the Illinois Development Finance Authority, which obtains financing for nonprofit associations. Private utility ineligibility is generally viewed as an obstacle to financing rural infrastructure projects — in Kentucky, for example, where many water systems are owned and operated by private associations.

Lack of financial capability: Communities and districts that cannot afford 100-percent debt financing cannot take advantage of bond bank financing unless they are able to obtain grants to reduce debt service to affordable rates.

Small customer base: Communities and districts comprised of a small number of customers — generally under 1,000 — have limited debt service capability and cannot spread costs. Because of low population densities in rural areas, stubbornly high per-capita costs limit users' ability to achieve economies of scale. Grants and low-interest loans are needed for capital projects. Bond banks are unlikely to accept projects with low revenue-generating capability.

Need for new service: Unincorporated areas or districts that do not have water or sewer service may have no existing financial base and no source of revenues. These areas present high default risks to bond banks because they lack sufficient evidence of financial capability and have little or no collateral. In addition, bond banks may be reluctant to include these participants because of their substantial financing needs and statutory limitations on total bond bank financing.

Poor management structure: Water and sewer systems with user rates insufficient to cover operating costs, depreciation and reserve costs are poor bond bank candidates. Communities that do not demonstrate management capability, implement capital improvement plans or institute adequate

operation and management controls may also be viewed as unacceptable risks.

Comparison of Bond Banks and State Revolving Funds

Although state revolving funds for wastewater projects capitalized with federal grants offer loans at lower interest rates than bond banks, communities may save as much as 25 percent of project costs — that is, costs that are attributable to federal SRF planning and construction requirements — by borrowing through a state bond bank instead of the federally capitalized SRF.

The chart on the opposite page provides a comparison of the costs associated with both financing mechanisms. In making such comparisons, it is important to consider hidden costs, such as inflation-related costs or lost revenues that may result from long delays — perhaps a year or more — when a community applies for SRF financing versus the 60- to 120-day average turnaround for an application to a bond bank.

For example, an Indiana community chose to finance water system improvements through the state bond bank because of the anticipated one-year delay involved in obtaining FmHA Water and Waste Disposal financing. The bond bank issue required both a higher interest rate and a shorter loan term than FmHA loans carry, but bond funds were available to the community within three months. The project managers estimated that they would lose \$100,000 in water system revenues because of the delay in obtaining FmHA funds. By moving ahead on project construction, the community was able to use increased system revenues to offset the higher costs of borrowing while implementing needed system improvements.

In attempting to capture the pros and cons of these financing methods, a chart unavoidably generalizes, of course. Any attempt to determine whether bond banks or state revolving funds offer greater savings to specific small communities for particular projects should certainly include close scrutiny of the variables above. Specific relevant statutes, targeting methods employed and supplemental funding available in each state program will also have an impact on overall project costs.

Potential Impact of Bond Banks on Rural Needs

The role of state bonding authorities as a finance mechanism for sewer projects may take on increasing importance in light of the termination of the EPA Construction Grants program and the transition to SRFs for wastewater facility financing. Many rural communities may have limited access to SRF

Table 14
Bond Banks and State Revolving Funds:
Comparison of Financing Methods

<u>Bond Banks</u>	<u>State Revolving Funds</u>
<ul style="list-style-type: none"> ● Few ineligible costs ● Possible dollar restrictions ● Issuance costs may or may not be absorbed ● Capitalization needs may add to borrower fees ● Quick turnaround, averaging 60 to 120 days ● Quick turnaround avoids costs due to inflation ● Lower up-front costs ● Possible interim or short term financing ● Near market rate interest ● Average 20 year loan maturity ● Access to credit based primarily on financial and management capability ● Nonprofit and private utilities usually ineligible ● Coverage costs may be necessary to secure bond bank debt 	<ul style="list-style-type: none"> ● Many ineligible costs due to federal restrictions ● Dollar restrictions, if any, based on state policy ● Issuance costs may or may not be absorbed ● Capitalization through federal grants, but funding state match may add to borrower fees ● Possible delays of over one year ● Possible delays of over one year which add to project costs due to inflation ● Federal requirements add to up-front costs ● Possible credit for locally-incurred planning and design costs ● Below market rate interest with flexibility to set as low as a 0% rate ● Average 20 year loan maturity ● Access to credit based on priority system criteria and secondarily on financial and management capability ● Private for-profit utilities usually ineligible ● Coverage costs may be necessary depending on SRF leveraging requirements

loans because of low funding priority and inability to complete preliminary planning requirements. Bonding authorities offer more accessible financing to rural and rural poor communities because of streamlined procedures.

The affordability of bond repayment is a primary question in determining the potential impact of bonding authorities on rural facility financing needs. Communities *that can afford debt repayment at market interest rates* may finance wastewater projects through state bonding authorities. Loan affordability is dependent on project costs, community size and community income levels.

Some rural and rural poor communities may be able to participate in bond bank issues to finance capital *improvement* projects, depending upon the amount of funding needed. When overall project costs are lower, rural and rural poor communities may be able to generate sufficient revenues to repay bond debt. Bond bank financing may be an affordable option for equipment purchase and rehabilitation of systems in rural poor communities, depending upon the community's financial need and ability-to-pay. The affordability of this option may be explored by comparing the losses in operating costs to the savings realized by operating a healthy facility.

Rural and rural low-income communities cited by SRF staff as unlikely loan candidates cannot take advantage of bond bank issues because their debt repayment ability is restricted by high project costs, small customer base and limited financial capability of customers. In particular, bond bank financing is not a viable alternative for rural and rural poor communities that currently lack water or sewer facilities. Without facilities, such communities have high capital costs but lack an established revenue generating base. State bond bank staff agree that unsewered rural and rural poor communities need substantial grants and other subsidies to finance new project construction. At market interest rates, few rural or rural poor communities can afford 100-percent loans from state bond banks for new project construction.

Rural and rural poor water and sewer districts may be unable to take advantage of bond bank participation because private utilities are ineligible for tax-exempt financing in most states. The predominance of private utility ownership, which accounts for more than half of all rural water systems, is an impediment to access to bond bank financing. Private systems are also considered poor credit risks because of their management structure, small customer base, insufficient user rate structures and lack of taxing authority.

Communities and public entities that meet threshold criteria in terms of sufficient management and financing capability can take advantage of financing capital projects through bond banks. For this group, bond bank financing may be a more affordable alternative than borrowing from state

revolving funds in some cases because of the streamlined process offered by most banks. However, SRF survey data show that rural facilities often charge insufficient sewer user rates and some do not generate sufficient revenues to cover operating or reserve costs.

In most cases, managers of rural systems, especially those serving predominantly low-income communities, will need assistance with budget management and financial planning before they can be considered for bond bank participation. Because of inadequate user charge structures among many rural and rural poor facilities, lenders cannot be assured that sufficient revenues will be generated for debt repayment. Further, citations or other evidence of facility noncompliance and poor facility maintenance cause lenders to become concerned that investments will not be adequately protected. Rural and rural poor facilities are likely to need financial management assistance before they will meet bond bank financing criteria. Many will be required to raise user charges and establish reserve and replacement funds before they will be considered reasonable loan risks.

CHAPTER 7
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**MEETING RURAL WASTEWATER FACILITY NEEDS
BY ENHANCING ACCESS TO CREDIT**

*Would a federally sponsored
Water Facilities Bond Marketing Authority
facilitate funding of water and sewer projects
for rural communities?*

GOVERNMENT SPONSORED ENTERPRISES (GSEs), like bond banks, benefit high credit risk issuers who do not have access to the conventional taxable and tax-exempt credit market. GSEs can offer advantages because, like bond banks, they serve an explicit public policy purpose, but their debt is viewed as implicitly guaranteed by the U.S. government. This implicit guarantee tends to reduce the yields required to sell GSE securities and increases the marketability of GSE issues. This chapter offers an assessment of the potential advantages of a hypothetical GSE dedicated to financing rural water and sewer projects.

Background

The financing advantages offered by bond-pooling authorities, whether state bond banks, financing authorities, state revolving funds, or GSEs, are tied to their ability to diversify risk while providing the market with the security that debt will be repaid. Each can spread the costs of bond issuance and streamline the process of obtaining credit from the market.

However, current federal tax laws have restricted the ability of bonding authorities to offer additional savings by mandating debt-service reserves and limiting arbitrage earnings. As a result, some bond banks have limited ability to generate funds that may be used for working capital to cover issuance and administrative costs. Federally capitalized state revolving funds have greater

flexibility to offer savings than bonding authorities because of their substantial debt-free capitalization.

State bond authority staff agree that the federal tax laws have created a disincentive to establish new bonding authorities because new authorities will be limited in their ability to generate revenues for working capital and will be forced to pass these costs on to borrowers. Accordingly, it makes sense to explore the feasibility of filling the financing gap by establishing a GSE to finance rural infrastructure projects.

Secondary Market Design

GSEs are established to: 1) circumvent credit market imperfections; 2) alter resource allocation where that is necessary; and 3) promote income redistribution where that is deemed appropriate. A GSE could thus be designed to enable small communities to finance water and sewer projects. Whether the GSE would have a significant impact on resolving these facility needs would depend on the savings achieved and the demand for this type of financing.

A GSE basically operates in the secondary market — that is, the buying and selling of already issued bonds — but can perform some functions in the primary market as well. The GSE for rural water and sewer projects — which will be referred to hereafter as the Water Facilities Bond Marketing Authority (WFBMA) — would buy debt used to finance water or sewer facilities for small low-income communities, pool the debt and securitize the debt by issuing loan-backed securities to be issued in the private market. The WFBMA could lend to water supply districts, state or local governments, and/or private entities.

As described above, the WFBMA would act as a pass-through agent. That is, WFBMA payments from borrowers would merely be passed through to the lender. In this situation, the intermediary may take a fee from the lender or the borrower (or both) in exchange for providing the service of intermediation, but otherwise passes on the payment to the investors. The WFBMA fund, or its agent, would bundle various loans into a series of pools and would sell undivided shares in those bundles to buyers in a pass-through operation.

The WFBMA could have the effect of easing the market, and might, in fact, earn income, or achieve some other social policy goal, by facilitating the flow of savings to the appropriate borrower. While the basic function may be merely that of matching lenders with borrowers, "pooling" can create a wider market. Small water districts, for example, could suffer from a lack of

information about them circulating in the financial community or from a lack of financial information flowing to the district. In either case, the intermediary WFBMA could assist. And a small district could improve prospects for attracting investors by sheltering its debt, in effect, as part of the debt of a much larger player in the credit market — the WFBMA.

In this case, risk is passed to the purchaser of the security rather than being borne by the lender — the WFBMA. The lender becomes merely the pass-through agent, a conduit between the borrower and the bond buyer.

To meet specific objectives of potential private investors, *loans which have similar risk, maturity and interest rate characteristics would be placed in the same bundle*. The characteristics of this security representing undivided interest in the bundle can be considerably different than the characteristics of the loan assets held in the pool. They may have different maturities, different denominations, or lower yields. The intermediary may also substitute variable-rate for fixed-rate payments. Thus the intermediary can change the nature of the market — doing more than merely changing the volume of lending and reaching a larger volume of potential investors.

Credit Enhancement Options

The ultimate test of the degree of credit enhancement needed is whether the loan can be made and sold to the final purchaser, the private market security buyer. GSEs are able to use the same types of credit enhancement that are used by state bonding authorities and federally capitalized state revolving funds.

Credit enhancement in general takes one of three forms: 1) insurance; 2) a letter of credit; or 3) a reserve or guarantee fund.

- *Insurance* against default on payments of interest and principal is usually provided, by a highly rated (AAA) insurance provider, for the life of the bond. In the municipal market, insurers include AMBAC, MBIA, FGIC,¹ and other agents representing consortia of large investment institutions.

- An irrevocable *letter of credit* (LOC), issued by a highly rated (AAA or AA) commercial bank, is basically a commitment to

¹ The Federal National Mortgage Association even uses General Motors Credit Corp. to insure part of its housing portfolio.

pay one installment of interest and principal. Usually it must be renewed annually.

- A *guarantee* is often supported by retaining a portion of assets as a reserve against claims. The higher the risk of loss, the larger the share of reserves that must be retained.

Although there can be many variables from case to case, in general insurance provides the greatest degree of protection, a LOC the second greatest, and a reserve or guarantee the lowest level of security. By the same token, given equal risk, the cost of each reflects these differences.

For insurance to be provided, *the pools must be of sufficient size (number of loans) and homogeneity to be able to appraise risk.* Risk represents the various probabilities of specific occurrences within a known probability distribution; uncertainty, on the other hand, represents a situation where there is such a dearth of information as to be unable to construct a reasonable estimate of default. Risk can be insured against; uncertainty cannot. But uncertainty can be converted to risk when there are sufficiently large numbers of essentially similar situations.² Thus *the efficacy of WFBMA credit enhancement would depend, to some degree, on the number of similar loans that could be included in an insurance pool.*

On this point, it bears noting that the WFBMA should not be placed in the position of guaranteeing only those securities which could not otherwise obtain insurance in the private market. That is, it should have access to the entire market; otherwise it could become an insurer of last resort, saddled with potentially unacceptable risks of slow payment and default.

In general, the degree of credit enhancement required is not known until a very specific transaction is at hand. Credit enhancement is required if certain risks seem to make the bonds unsalable. The type and configuration of credit enhancement is dependent upon the structure of the deal and the potential buyers that have been targeted. Easier sales of bonds result in lower interest rates. If the reduction in cost occasioned by the credit enhancement

² An insurance company cannot tell you if you will break an arm tomorrow, but if its sample is sufficiently large it can tell you that a certain percentage of its clients will, on average and with some degree of certainty, break their arms on any given day. The sample size must be large enough to project the probability distribution. Thus, to insure a pool there must be sufficient sample size and history of payment to project a probability of default. Otherwise, large municipal bond insurers will not provide coverage, and any reserve fund established by the pool will be of questionable relevance to investors.

outweighs the cost of credit enhancement, then the decision must be to credit-enhance.

Potential Savings to Borrowers

The secondary market cannot borrow on behalf of unworthy credits, change an enterprise from an unprofitable position to a profitable one, or sell at rates that are below market. What it *can* do is change the relevant market that the bond is sold in. To the extent that an entity is receiving a subsidy it must still receive the subsidy, and to attract buyers an intermediary must still sell its bonds at competitive rates. Thus, any subsidy previously accruing to a water supply entity that chooses to borrow through the WFBMA must now be paid to the WFBMA to bring its rate paid up to the market rate.

The WFBMA is able to offer the same types of savings and advantages that are achieved by state bonding authorities. Savings would potentially come from: 1) reduced issuance costs; and 2) access to the market for market-rate interest. By pooling debt, issuance costs are spread over a larger size of bond, and economies of scale are achieved. Further, by broadening the market by changing the nature of the debt so that it appeals to many more investors, participants benefit from a reduction in annual debt service.

With regard to the first type of savings — a reduction in the cost of issuance — it is instructive to look at the nature of offering and pricing a bond in the U.S. municipal market to assess the potential reduction in the costs of issuance achieved through the WFBMA. Participants may realize savings in underwriter fees, bond counsels' fee, and the cost of bond insurance or other debt securities. However, the WFBMA would be limited in its ability to absorb these costs because, like state bonding authorities, it would be restricted in its arbitrage earnings ability and therefore would need to generate income to cover administrative and other costs.

The second type of savings made possible by the intermediary — a reduction in interest rates — is more difficult to assess from a hypothetical standpoint. Rate savings may range from zero to .3 percent, depending on the nature of the market that the water supply entity is presently able to sell into. An issuer with a credit situation similar to the WFBMA — that is, already enjoying the .15- to .25-percent advantage over taxable issues — would probably benefit little in rates. On the other hand, an issuer with little market recognition, uncertain credit or a small issue size might benefit greatly from the impact of a pooled offering.

For most small and rural communities, however, the principal appeal of the WFBMA would be new access to the tax-exempt market for water and

sewer improvement or construction projects. Without the WFBMA, issues of less than \$15 to \$25 million would have little appeal on bond markets and would be unlikely to attract competitive rates. With the WFBMA, issues of this small size could be bundled into a marketable pool at market-rate interest.

The credit access afforded by the WFBMA could be significant both because of the implicit federal guarantee and the ability to attract investors by packaging bundles of similar projects drawing from borrowers nationwide. Each party to the transaction would expect to benefit to some degree:

- Borrowers for water facilities would have a ready pool of capital at rates reflecting economies of aggregation and market access.
- Investors would be purchasing a pass-through security supported by minimally risky investments where even that risk would be shared by other investors in the pool and by other forms of insurance or guarantee.

Issues Relating to Federal Tax Law

Under current federal tax law, the proceeds of tax-exempt bonds may be pooled with other types of funding in a single fund without loss of the tax-exempt character of the bonds, as long as requirements for tax exemption continue to be met. Such pooling does not, however, extend the tax exemption to other securities in the fund which would otherwise be taxable. A change in the federal tax law would be needed to create a fund that consists of both tax-exempt and taxable securities and which in itself would be tax-exempt. The trend in congressional tax writing committees over the past few years has been to allow minimal liberalization, if any, in the tax-exempt bond area, and this would be considered a fairly significant change. Thus, one should expect the WFBMA to issue both taxable and tax-exempt pools, but not an amalgamation of each.

To the extent that the WFBMA were to rely on tax-exempt bonds for financing, it would be subject to numerous restrictions on tax-exempt financing. Among the most significant of these is the limitation on private "use" which distinguishes private activity bonds from "governmental" bonds. Proceeds of tax-exempt bonds placed in the fund would have to be tracked so that the degree of private use could be measured. If private use, as defined by the tax code, were to exceed 10 percent, the bonds would be considered private activity bonds and would be subject to additional restrictions.

Projects which might seem to the average observer to be clearly public, such as construction of a sewage treatment plant, might be treated as "private activity." For example, if several commercial users in aggregate were to use more than 10 percent of plant capacity, or if the plant were to be privately owned, and revenues from private sources provided more than 10 percent of the security for the bonds, plant construction would be treated as a private activity.

As noted, the bonds would be subject to the tax code's arbitrage restrictions, regardless of their tax-exempt or taxable nature. These restrictions have been a particularly troublesome aspect of the tax law for pooled funds. They are designed to prevent states from making a profit on tax-exempt financing by investing proceeds in higher-yielding securities or by issuing bonds earlier than they are needed. The Code prohibits issuers from investing net bond proceeds at a yield "materially higher" (i.e., .125 percentage points) than that of the original bond issue ("yield restrictions") and requires them to rebate any arbitrage earned to the federal government ("rebate requirements"). Violation of the arbitrage rules will result in a bond losing tax-exempt status.

The effect of these restrictions as specifically applied to bond pools include:

- Investments made from bond proceeds not spent for the designated bond purpose within six months (i.e., loaned out) will be yield-restricted, and the rebate requirement will apply. After a loan is made from the fund, there is a 30-month construction period in which yield restriction is not required; however, arbitrage proceeds will have to be rebated. The bonds will be considered "proceeds" until their actual expenditure on the facility.
- Debt service reserve fund amounts greater than 10 percent of the original bond issue, regardless of whether created with bond proceeds, must be yield-restricted (an exception is made for funds intended primarily to achieve a matching of revenues and debt service within a bond year).
- Investments made by loan repayment from communities must be yield-restricted after a three-month "turnaround period." Loans made with these funds do not receive a 30-month construction period.

- Issuers of bonds for a pooled fund must reasonably expect that at least 95 percent of the net proceeds will be lent to borrowers within three years.³

Compliance with these restrictions entails careful tracking of the proceeds of every tax-exempt bond included in the fund. Issuers have found this to be an extremely burdensome and sometimes expensive undertaking. It is a cost that would have to be anticipated by the WFBMA.

Currently there is no federal legislation pending which would place additional restrictions on programs like the proposed WFBMA. On the contrary, there is a reasonable possibility that proposals allowing some liberalization of the existing restrictions could be enacted by Congress in 1992. It is likely that if the tax laws were changed to accommodate such a program, Congress would want to include restrictions in the legislation designed to prevent abuse and minimize potential revenue loss.

Prospects for Enactment

There is growing concern about the considerable risk exposure of the federal government in its insurance and guarantee programs because of the problems of the savings and loan industry and because of the effects of recessionary economic conditions in general. Within Congress, policy initiatives have been discussed in regard to: 1) increasing capitalization of GSEs to a level that would enable them to receive AAA rating by the principal rating agencies; 2) increasing congressional oversight; and 3) charging transaction fees to agencies for security transactions. Increased capitalization and transaction fees, however, clearly erode the ability of GSEs to enhance targeted investment and achieve their public purpose.

Potential Impact on Rural Water and Sewer Needs

Much like bond banks, the WFBMA could provide increased access to tax-exempt financing to unrated communities. The WFBMA could also provide increased access to: 1) small and unrated municipalities located in states that do not have bond authorities; 2) small and medium-size communities that cannot obtain financing through state bond banks because of capital limitations; and 3) private utilities with little or no access to the bond market.

³ All points except the last are drawn from Graham, Shinn, and Petersen, *State Revolving Loan Funds Under Tax Reform*, Council on Infrastructure Financing Authorities, Monograph No. 2, June 1989.

Thus it is likely that the WFBMA would fill a gap in capital needs for water and sewer projects for communities that have debt capacity and economies of scale.

However, neither the WFBMA nor bond banks can provide affordable financing to very small communities that require grant subsidies to finance water and sewer projects. The WFBMA would not be able to secure loans that are not creditworthy, or provide financing to communities with little revenue-generating capability. It is unlikely that the WFBMA could provide the level of subsidy needed to develop viable projects in many rural areas. Moreover, the increasing scrutiny of GSEs at the federal level and the potential imposition of transaction and other fees will further restrict their ability to assist lower-income areas.

A federal WFBMA might be further limited in its impact on rural water and sewer financing needs. Bond bank staff note that federal requirements and red tape associated with GSE financing could result in additional project costs. Moreover, some financing experts warn that the savings achieved by the WFBMA could be offset by the additional costs associated with federal requirements, such as incorporating Davis-Bacon wage requirements in project construction. From this perspective, bond banks may indeed present a more affordable financing alternative. Some states are exploring the possibility of a state GSE to bypass some of these problems; however, such a configuration would pose new problems of its own.

Both small and larger communities might seek WFBMA financing for water and sewer projects. Communities with existing facilities that must be upgraded to meet changing regulatory requirements might be viable WFBMA candidates. The need for financing from such communities is apt to exceed the limited resources available in the FmHA program and state revolving funds. Loans at near-market rate interest would be affordable to many of these municipalities, particularly those that serve higher-income households or have a sufficient user base to support debt service costs. However, communities that lack water or sewer facilities and have no established financial base would be less likely to seek or to be able to afford WFBMA financing.

CHAPTER 8

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CONCLUSIONS AND RECOMMENDATIONS

This report has focused on several issues:

- What are the wastewater treatment facility needs of rural low-income communities? What do the available data tell us about the relationship between inadequate wastewater facilities and rural poverty?

- Do federal funding programs address the wastewater treatment needs of rural low-income communities? What methods are used to direct funds to projects that serve such communities? Will federally capitalized state revolving loan funds address the problems faced by rural low-income communities in financing wastewater facilities? Will the FmHA Water and Waste Disposal program fill a critical financing gap resulting from the transition to state revolving loan funds?

- What are the characteristics of rural communities that are able to participate in state bond bank or secondary market issues for water and sewer projects? What are the characteristics of those unable to participate?

The data and analyses contained in this report, including the state case studies, attempt to address these questions. And, because this report inevitably leaves some questions unanswered and raises additional issues, recommendations for future research are provided. The conclusions and recommendations that follow are based on the research and analysis conducted for this report and on discussions with state and federal funding agency staff, regulators, representatives of rural development agencies, and the project advisory panel.

EPA Needs Survey Data

The 1988 EPA Needs Survey provided the basic data used in this report to analyze rural sewer needs. The data show that existing sewer facilities located in poor rural counties exhibit the highest incidence of

noncompliance with federal standards. Interviews with state and federal regulatory staff indicate that limited financial and management capability contribute to the high rate of noncompliance among wastewater facilities serving the rural poor. *In the absence of more affordable financing and improved management, many wastewater facilities serving the rural poor will remain in noncompliance.*

■ **Recommendation:** Regulators should systematically *explore the causes of noncompliance among rural wastewater facilities* to determine whether such facilities lack the financial capacity to implement required improvements. Management systems and operation and maintenance practices should also be systematically evaluated to determine whether facilities have the operational capacity to maintain compliance after physical plant improvements are made.



Shortcomings in EPA Needs Survey data prevent policymakers from assessing whether facilities have the capacity to address documented needs.

■ **Recommendation:** Future EPA Needs Survey data should include information about the financial and managerial capacity of facilities with identified needs. Facility records should include: population size, community income, annual user charges, operating revenues and expenses, size of reserve fund and operator certification level.



The magnitude of rural facility needs is not fully captured in the EPA Needs Survey, in part because of EPA documentation criteria. Poor rural communities typically lack the capacity to finance the kinds of technical studies commonly used elsewhere to document needs.

■ **Recommendation:** Poor rural communities should be provided with technical assistance to help document their wastewater facility needs.



Additional research is needed to identify rural wastewater facility needs. The severe needs of unsewered rural areas, in particular, are not reflected in EPA Needs Survey data. Nonpoint source control project needs, although eligible for SRF funding under the Water Quality Act of 1987, were not identified in the 1988 EPA Needs Survey — yet SRF staff nationwide say that developing new community sewage collection and treatment facilities to

replace malfunctioning or non-existent individual household facilities is the most critical need in poor rural communities.

■ **Recommendation:** Needs Survey documentation criteria for nonpoint source control project needs should be developed and implemented. Further, addressing the needs of unsewered areas should be made a priority under the Water Quality Act to ensure that households nationwide have adequate sanitary facilities.



The EPA Needs Survey provides the basis for determining state SRF allocations. Predominantly rural states receive proportionately lower funding than states with major metropolitan areas because rural needs are not fully documented in the Survey and because rural facility project costs are lower on a case-by-case basis than urban projects. Although rural community facilities account for about 75 percent of all existing and planned facilities nationwide, the projected cost of meeting rural facility needs accounts for only about 25 percent of the national cost estimate. Because of state SRF allocation formulas, rural states are underfunded relative to the number of projects with identified needs.

■ **Recommendation:** State SRF allocation formulas should be revised to reflect the magnitude of need in terms of number of facilities to increase the rural states' allocation levels. Further, allocation formulas should reflect economic need in addition to compliance-driven need.

Rural Poor Wastewater Facility Needs

Large numbers of rural low-income communities are currently served by inadequate individual facilities that need to be replaced by municipal sewer collection and treatment facilities. SRF staff nationwide agree that failing individual facilities represent the most prevalent compliance problem in rural communities.

■ **Recommendation:** Low-income rural community facility needs should be evaluated to determine whether individual facilities can be replaced or whether conditions warrant developing municipal facilities. Rural communities that must develop new municipal facilities should be provided with at least the same level of capital investment that larger municipalities received during the Construction Grants program. Moreover, facility funding

terms should be based on ability to pay, to ensure that rural low-income communities obtain access to affordable financing.



Many rural poor communities are currently served by municipal treatment facilities that are in noncompliance. The high incidence of violations among rural poor communities is often the result of poor operation and maintenance.

■ **Recommendation:** Regulators should investigate the reasons for the high incidence of facility noncompliance among facilities serving rural poor communities. Regulators should evaluate facility budgets, physical plants, management capabilities and maintenance schedules and procedures to ensure that these facilities, if upgraded, can be adequately operated and maintained.

State Revolving Funds

SRF survey findings show that although numerous states are taking steps to target funds to small, rural and rural low-income community wastewater projects, states will continue to obligate the majority of SRF loans to larger, more creditworthy municipalities. Rural poor community needs that may not be addressed by SRFs include both treatment facility noncompliance and construction of new sewer collector and treatment facilities.

The cost and complexity of up-front requirements of federally capitalized SRFs are an impediment to rural facility financing. Many rural and rural low-income systems, particularly those that are privately owned or managed on a part-time or volunteer basis, lack the capacity to comply with preliminary requirements. SRF programs are targeting funds to larger municipalities because they are able to meet preliminary requirements and are ready to proceed to construction — thereby helping SRFs to ensure that SRF loans are committed within the federally required one-year time period.

■ **Recommendation:** State and federal SRF staff should develop revised criteria for preliminary studies so that, based on facility needs, rural applicants may work with state technical assistance staff to develop preliminary studies. When in-depth studies are required, preliminary planning grants should be available. Such measures will enhance rural community access to SRF loans.



SRF funding priorities stress water quality impacts as mandated by the Clean Water Act and subsequent amendments. This means that large municipalities are likely to be given higher funding priority status than rural communities. As long as the primary emphasis is on water quality, rural communities will face stiff competition for SRF funds, particularly as metropolitan areas apply for funds to replace aging facilities within the next five years.

■ **Recommendation:** States should be required to establish separate categories of priorities for urban and rural facility needs to minimize competition for funding.



First use requirements mandate that SRFs give top lending priority to National Municipal Policy (NMP) projects. As a result, states with NMPs that can afford debt repayment are receiving the lion's share of available loan funds, effectively barring access to other projects with facility needs.

■ **Recommendation:** EPA should enforce NMP policy, which states that compliance must be achieved "with or without federal funds." SRF loans should be issued to NMP projects only when across-the-board loan conditions have been met, so that all projects have equal access to SRF funds.



Federal SRF regulations direct funds to projects that address water quality needs and do not require that funds be allocated based on community size or ability to pay. However, federal capitalization grants enable SRFs to offer loans at subsidized rates. For states that choose to do so, the problem is how to generate a repayment stream that will ensure the long-term viability of the revolving fund.

■ **Recommendation:** SRFs should be separated into two funds, one that revolves and is self-sustaining and another that functions as a financing institution offering both loans and grants. The self-sustaining revolving fund should offer loans to creditworthy applicants that do not require interest-rate subsidies. The lending institution should offer loans based on the applicant's ability to pay. Debt service requirements for loan repayment should target reasonable user charge levels that combine debt repayment and operation, maintenance and reserve costs. When debt service requirements cannot be met, supplemental grants should be provided to reduce user charges to an affordable level.



SRF staff nationwide agree that virtually all unsewered rural communities cannot afford to finance sewage collection and treatment facility projects with 100-percent loans. Moreover, they state that for many unsewered communities, zero-percent loans are not an affordable option, in part because of the high cost of facility operation and maintenance.

■ **Recommendation:** States should evaluate low-cost technologies and lower maintenance cost options, including individual system improvements and low-flow toilets. Where soil and topography allow, unsewered rural communities should have access to grants to replace inadequate septic systems and to create management districts to ensure that facilities are properly operated and maintained.

Where municipal collection and treatment facilities are needed, projects should be phased or separated into segments. Consolidation options should be evaluated as a means of spreading costs. Other cost-cutting measures such as use of volunteer labor and shared equipment should be encouraged. Rural low-income communities should receive 75-percent grants for initial capital construction costs, just as larger municipalities received in the early years of the Construction Grants program. State staff should work with rural communities to encourage the use of low-maintenance cost technologies.



Rural low-income communities usually must obtain low-interest loans and grants from several funding sources in order to develop affordable projects. This leveraging process can be extremely burdensome for small communities with limited staff who must devote considerable time to complying with various program requirements. Case studies conducted for this report indicate that the need to leverage grants can cause costly delays in project development — since applicants cannot proceed until the entire financing package has been put together.

As states take on increased funding responsibility, funding task forces have been established in some cases to improve coordination among funding sources. Interagency networks have resulted in compatible funding schedules and streamlined application requirements, and are working to ensure that programs do not compete for applicants in order to obligate funding allocations.

■ **Recommendation:** SRFs should be directed to coordinate with other funding programs to help applicants that need to leverage project funds. Establishing a single-source contact and/or compatible deadlines would reduce competition among programs while increasing the likelihood that

complete finance packages are assembled. Coordination would also enable funding sources to identify the particular financing gap each can address.



Sewer user rate structures among rural low-income facilities often do not cover operational expenses and few have reserve funds for equipment replacement, repairs or depreciation. Insufficient revenues contribute to facility deterioration and high rates of noncompliance. Improved financial management practices are necessary if rural low-income facilities are to be viable loan candidates, particularly as SRF financing staff scrutinize repayment ability.

■ **Recommendation:** Financial audits should be conducted on all rural sewer systems. Rural communities should receive assistance to evaluate financial capability and to establish budgets and capital improvement plans. Facilities should be required to maintain reserve funds that can be used for capital expenses. In cases where facilities might be required to charge excessively high user fees to cover operating expenses, facility consolidation options should be explored.



Many rural low-income facilities do not employ trained operators. In some states, very small systems (under 500 users) are not required to employ certified operators. Part-time staff or volunteers often assume operational responsibility and receive little financial support or guidance. If operators lack funds for equipment maintenance and replacement, they may keep the system operating by postponing maintenance or replacing equipment only as a last resort. SRF staff identified poor operation and maintenance as one of the most common causes of rural facility noncompliance.

■ **Recommendation:** SRF loan agreements should require that systems employ trained personnel or provide mechanisms to ensure that systems share operator staff. Training and technical assistance should be made available to operators on a regular basis. Guidance on emerging regulatory requirements should be offered to operators and managers. More effective communication between system managers and operators should be encouraged so that operational needs are realistically reflected in budget planning.



The Construction Grants program was criticized for emphasizing facility planning and construction to the detriment of plant operation and

maintenance. In the transition to SRF loans, funding staff may evaluate compliance records to ensure that loans are made to those with the capacity to protect capital investments. Consideration of compliance records and operation and management capacity is evidenced in revised SRF priority system scoring in which noncomplying facilities no longer receive increased ranking.

■ **Recommendation:** States should determine the causes of facility noncompliance and work with communities to develop compliance schedules. Funding priorities should first reward communities with records of sound operation and management, with lower ranking for communities with records of continued violation. Assistance programs should be developed to help managers develop compliance plans.

Farmers Home Administration

Unlike funding programs authorized by the Clean Water Act and subsequent amendments, FmHA Water and Waste Disposal funding was established to help rural communities gain access to affordable water system and wastewater facility funding. FmHA funding was not established specifically to help water and sewer facilities meet federal environmental standards. Historically, EPA wastewater grant funding levels have been ten times greater than those of FmHA grants, and jointly funded EPA-FmHA sewer projects have been two to four times larger than FmHA sewer projects.

Drinking Water Projects: Rural water projects account for more than half of all FmHA-funded projects. FmHA data show that its loans and grants have met a critical need for rural water system funding in the absence of a national program to address the drinking water needs of nonmetropolitan as well as metropolitan areas. FmHA water system financing is likely to take on increasing importance as rural communities undertake system improvements required by the 1986 Safe Drinking Water Act amendments.

■ **Recommendation:** FmHA should continue to provide loans and grants for water system projects serving rural low-income communities that do not have access to conventional financing. FmHA funding priorities should not be compromised to meet the affordable wastewater facility financing needs of rural communities that cannot borrow from federally capitalized SRFs.

Sewer Projects: During the EPA Construction Grants program, FmHA funding met critical wastewater facility financing needs of rural communities by 1) enabling recipients to develop sewage collection facilities, a restricted

eligibility in the EPA program; 2) enabling recipients to obtain affordable local share financing with low-interest loans and additional grants; and 3) enabling rural communities to finance wastewater treatment facilities despite being unable to obtain access to EPA funding.

■ **Recommendation:** With the transition to SRFs, FmHA should structure its rural wastewater facility financing priorities so that the program can continue to meet the critical need for sewer collector facilities in rural communities that cannot gain access to SRF funding. FmHA should continue to give funding priority to projects such as sewer collectors that help low-income communities build basic infrastructure. FmHA should improve targeting of low-interest loans and grants to very poor rural communities that cannot achieve SRF funding priority.

■ **Recommendation:** FmHA funding should *not* replace EPA Construction Grants as a source of 55-percent grants for rural and rural low-income wastewater treatment facility projects. FmHA should continue to provide low-interest loans and grants for such compliance projects, targeting grants to very low-income rural communities. However, the agency does not have sufficient grant allocation levels to commit a substantial share of grants to middle-income rural communities.

■ **Recommendation:** FmHA funding should continue to be used to supplement wastewater project financing, thereby increasing project affordability. To the extent that FmHA grants may be used to offset SRF debt service, FmHA should target grants to projects serving very low-income rural households.



Eligible FmHA recipients include nonprofit associations, public districts and other public entities that have little access to conventional loans or tax-exempt credit. Such non-municipal entities often lack sufficient documentation of wastewater facility needs and cannot gain access to funding authorized by the Clean Water Act. Further, such entities may be restricted from SRF borrowing depending on SRF credit requirements and bonding practices.

■ **Recommendation:** FmHA should continue to provide critically needed financing for rural and rural low-income wastewater facility projects that may not have documented facility needs and therefore cannot obtain access to SRF financing. In addition, FmHA should continue to provide funding access to non-municipal entities that may be restricted from participating in SRFs and state bond banks.

State Bond Banks

State bond banks appear to offer the greatest access to middle- and higher-income rural communities that can afford their financing terms, since they have few technical requirements and a relatively short funding obligation turnaround. State bond banks may be a more affordable option than SRFs as a result of streamlined procedures, fast turnaround and low up-front costs. For rural communities, state bond banks are an appropriate financing mechanism for facility improvement projects.

■ **Recommendation:** State bond banks should continue to provide access to wastewater facility improvement financing for middle and higher-income rural communities. State bond banks should focus on their role as a financing mechanism for projects with lower overall costs, leaving SRFs to finance higher cost projects where interest subsidies provide greater savings.



State bond banks have historically met a critical need for local share financing in projects that also received Construction Grants assistance. With the transition to SRFs, fewer communities will require local share funding for wastewater facility projects. However, SRF applicants will be required to demonstrate that they are good credit risks and can generate sufficient revenues to meet debt service requirements.

■ **Recommendation:** State bond banks should help rural and rural low-income communities to develop credit histories and sound financial management practices by issuing loans for very low cost projects, such as equipment replacement and repair. This would benefit rural and rural low-income communities with existing facilities and in some cases could help such communities to move toward regulatory compliance.

APPENDIX A

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STATE CASE STUDIES

CASE STUDIES OF FUNDING PROGRAMS in Arizona, Minnesota, Washington, and West Virginia can offer insight into the extent and magnitude of water and sewer needs in rural poor communities.¹ And they provide a useful context within which to evaluate how effectively the federal programs reviewed in this report — Environmental Protection Agency Construction Grants, federally capitalized state revolving funds, and Farmers Home Administration Water and Waste Disposal Loans and Grants — address the facility financing needs of rural poor communities. Looking at the role of both state and federal funding programs will help analysts to evaluate the effectiveness of different funding priority systems and award criteria. Naturally, the types and level of state funding resources vary from state to state, as do the targeting methods used; these differences are themselves useful in illuminating why some programs and strategies are more successful than others at addressing rural facility needs.

Arizona, for example, has minimal state water and sewer funding programs; federal programs and funds have thus filled a critical need. Demand for FmHA funds has been consistently high in Arizona, and the state FmHA office has obtained re-pooled national funds for the past several years. The dominance of privately owned utilities in rural communities, however, has created a funding gap, since ownership of such utilities must be transferred to nonprofits before they can become eligible for federal funding. The Arizona SRF program also precludes participation of privately owned utilities. Moreover, the SRF does not target rural or low-income facility needs. The SRF priority system focuses on environmental quality impacts; it does not take community income and/or financial needs into account.

¹ While each case study offers anecdotal information regarding rural infrastructure needs and funding, they provide relatively little hard data documenting the severity of the water/sewer needs of small, rural, and especially rural low-income communities. The shortage of such data is regrettable but not surprising, given the limitations of national needs data (see Chapter 1).

The Minnesota case study provides an example of the importance of organizational structure and inter-agency coordination to implement effective programs that meet rural water and sewer needs. The Minnesota Pollution Control Agency, the state's wastewater treatment regulatory agency, has established a close working relationship with state and federal funding programs. Coordination among regulators and funding agencies has enabled the state to reduce rates of noncompliance while obligating funds to entities that meet funding agency priorities. For example, Minnesota FmHA shows an above-average level of sewer project funding to lower-income communities — demonstrating that emphasis on compliance *and* low-income targeting need not be mutually exclusive goals when coordination and cooperation have been established among regulators and funders.

The Washington case study illustrates the benefits that can be derived from innovative state funding programs. In FY 1990, Washington water and sewer funding programs totalled more than \$90 million, more than twice the amount available to the state in federal water and sewer funding. Washington's state funding programs offer greater access and lower up-front costs than either the SRF or FmHA programs. As a result, demand for FmHA funds has lagged behind demand for state funds, and in some years FmHA has not spent its annual allocation. The case study further illustrates the importance of assessing both state and federal funding program impacts when evaluating the use of federal funds.

In contrast to the Washington case study, the West Virginia case study provides an illustration of the continuing importance of federal water and sewer financing in a state with limited financial resources available for water and sewer system improvements. Funding patterns in West Virginia parallel those in Arizona, despite differences in the economies of the two states. West Virginia FmHA has made a significant contribution to rural water and sewer system projects, and demand for FmHA funding consistently exceeds the annual allotment for the state. In fact, West Virginia FmHA has obtained re-pooled national FmHA funds for the past nine years, which has made it possible to obligate funds for the state above and beyond its annual allocation. In West Virginia's SRF, however, affordable project financing for the state's rural poor communities may not be feasible. The state legislature failed to appropriate general funds to meet the 20-percent state match required under the Clean Water Act. Without a debt-free match, SRF staff predict that only a few rural poor communities can afford to finance wastewater facility projects with SRF loans.

ARIZONA

As in many western states, Arizona's population is rapidly becoming more urban. Fewer than 20 percent of its 3.4 million inhabitants reside outside the state's two urban counties. But because of its size, aridity, and dispersed economy, Arizona has only a few communities with more than 20,000 residents. Most non-urban people live in small, scattered incorporated communities with populations ranging from 2,000 to 6,000.

The state has traditionally allocated more power to municipalities than to counties — a policy that has limited the fiscal and regulatory role of rural counties. For example, only two rural counties have created special district positions to help unincorporated communities meet their basic infrastructure needs. The state's water and wastewater needs reflect this growing problem, particularly in the area of regulatory compliance.

Rural Water Needs

Class I water systems, serving more than 1,000 customers, supply drinking water to 90 percent of Arizona's population. Only eight percent of the population is served by small water systems with fewer than 1,000 customers, referred to as Class II and Class III water systems, located in rural communities. Of the 209 water systems in the state that currently violate water quality standards, 94 percent are rural systems.

At least 60 percent of Arizona's rural systems are private nonprofit or investor-owned utilities. These privately owned utilities are ineligible for public financing. Although they may file for rate increases with the State Corporation Commission, the Commission's financial reporting and rate increase requirements can be particularly cumbersome for small systems. A majority of smaller systems have not made capital improvements because they have been unable to obtain substantial rate increases and lack access to financing.

An internal review of the state's major system violators was conducted with the Drinking Water Compliance Unit of the Department of Environmental Quality (DEQ) as part of this case study. The Unit's Drinking Water Enforcement Tracking Log lists, in descending order, the 100 systems with the most violations and potential health hazards. All of the violators except two are rural systems. Six systems are managed by public entities, one is a cooperative serving 28 people, and the remaining 91 violators are all privately owned systems with average service populations of 125.

To determine how typical incorporated rural municipalities are faring with system compliance, another survey of DEQ records was made for all rural communities with populations between 1,000 and 4,500. Criteria used to measure compliance were sampling/ monitoring, water quality, operator certification and operation and maintenance.

The survey revealed that nearly 40 percent of the systems had been cited for insufficient (usually infrequent) testing and reporting. Thirteen percent violated water quality standards. These were primarily bacterial Maximum Contaminant Level (MCL) violations, which DEQ staff said usually indicates dilapidated distribution and storage facilities. Only four Class I systems had not complied with certified operator regulations, while 270 Class II and III systems lacked certified operators.

Operation and maintenance infractions account for 37 percent of all violations. Ten percent of these violations involved "substantial compliance," i.e., deferred maintenance items that could be remedied with modest capital outlays or small rate increases. While a small number of these systems had not yet complied with SDWA amendments regarding upgrading water treatment facilities for surface water-supplied systems, most are planning long-delayed major capital improvement projects.

DEQ's current compliance strategy, compromised by a lack of financing and transfer options, permits the continued operation of these non-complying systems as long as violation notices are sent to all customers. The advanced age of most of these systems — averaging more than 50 years — means that the number of such notices will continue to grow. Legislators and regulators are hard-pressed to solve this problem in a state that doggedly resists new programs and taxes, particularly those that benefit rural residents.

Rural Sewer Needs

Since 1972, a total of \$270 million in EPA Construction Grants has been awarded to 74 Arizona communities. The DEQ Wastewater Division's current priority list of eligible wastewater facility project requests totals \$390.5 million from 126 municipalities. Rural communities comprise 101 of these requests, for a total of \$204 million. Fifty-six of these rural communities (45 percent of the total) have requested assistance to construct treatment facilities and new collector sewers.

Only 10 percent of rural wastewater facility applicants are currently served by wastewater collection and treatment facilities. The remainder lack these basic facility components, primarily because they were unable to secure affordable financing for local-share and ineligible costs during the federal

grants program. It is estimated that households may pay as much \$80 per month for sewer service with SRF loans in these unsewered communities.

The DEQ Wastewater Compliance Unit surveyed rural communities with populations ranging from 1,000 to 4,500 that are currently served by wastewater treatment facilities. These compliance data present a more complete picture of incipient wastewater capital needs than the Department's priority list.

DEQ rated systems in full compliance, substantial compliance or noncompliance with state and federal regulatory requirements based on the frequency and severity of violations. *Full compliance* permits no violations, *substantial compliance* implies consistent minor violations, and *noncompliance* indicates one or more serious violations. More than 60 percent of the systems were in full compliance, 20 percent were in substantial compliance, and the remaining 20 percent currently are in noncompliance.

Systems' degree of compliance was determined by examining four general criteria: effluent quality, effluent reporting, operation and maintenance and operator certification. The following summarizes compliance findings using these criteria:

- **Effluent Quality:** Violations pertained to permitted discharge systems that typically exceeded Biological Oxygen Demand (BOD) and fecal coliform limits. Only 7 percent were in noncompliance; 20 percent were in substantial compliance.
- **Effluent Reporting:** Approximately 13 percent had regular compliance difficulties in this area.
- **Operation and Maintenance:** Most of the frequent and serious violations occurred in this area; 34 percent had consistent violations because of insufficient operational procedures and inadequate and deteriorated equipment.
- **Operator Certification:** 17 percent of the systems lacked a certified operator.

A field report analyzing the causes of these violations found three major areas: operations management, inadequate financial management and facility-related violations, including completely outdated systems or lack of adequate treatment facilities.

Operational deficiencies, by far the greatest problem, can be traced largely to inadequate routine and preventive maintenance and irregular

equipment maintenance and replacement. Financial problems, the next most serious area of concern, stem from a lack of capital improvements planning and insufficient rate structures.

These data, combined with the impact of increasing wastewater facility needs in high-growth areas, signal an escalating financial need for loans and grants to improve existing systems in the next five to eight years.

Funding Programs

Community Development Block Grants

HUD's Small Cities Community Development Block Grant Program (CDBG) is administered by the Arizona Department of Commerce (DOC). In 1990, DOC was allocated \$5.4 million in CDBG funds. After state administration funds are set aside, 85 percent of the funds are allocated to a regional account, which is then distributed on a need/population basis among four Councils of Government (COGs) which represent the 13 rural counties eligible for CDBG funding. The remaining 15 percent goes to a Special Projects Account in which grantees are chosen by DOC or by the governor. In 1988, a Water/Wastewater Systems Improvement Component was added to the Account and has received an annual set-aside of at least \$200,000 since then.

CDBG funds have provided critically needed grants for incremental projects such as replacing deteriorating sections of water distribution lines or sewer collectors. CDBG funds have been used primarily for rehabilitation and extension projects.

The CDBG program is limited in its ability to meet vital infrastructure needs because the COGs lack financial resources. The only available administrative funding for COGs is a percentage of funded grantees' projects. This financial constraint prevents COG staff from helping communities who need the most organizational assistance and funding: smaller towns and, in particular, unincorporated communities requiring the assistance of experienced staff to submit competitive grant applications.

Furthermore, the COGs' governing regional councils seldom allocate funding based on need, preferring various "fair share" schemes instead. Maximum grant ceilings are set (typically \$100,000) and communities are funded in regular cycles, regardless of the type of project.

These small funding cycles encourage a piecemeal approach to serious system problems. Instead of using CDBG funds to cover preliminary engineering costs or to help leverage FmHA funds, for example, the trend has

been to either make minimum deferred improvements on the system every time one's "turn" comes up for funding or wait for the system's condition to deteriorate to the point that it can be classified as an Emergency Need (EN) and thus qualify for Special Projects funding.

This last strategy can be legally perilous for a community. Having received EN status, the community must rectify the deficiency and demonstrate compliance within the time permitted — whether or not it receives funding.

Over the past several years, the Department of Commerce's CDBG staff has begun to try to condition grants to include solicitation of additional financing to remedy the system problem. This usually means that a preapplication to FmHA must be filed before the end of the contract period. In addition, the Water/Wastewater Systems Improvement fund and increasingly more of the Special Projects set-asides are being used to help remedy the problems of the small unincorporated communities and investor-owned systems. CDBG funds are made available to counties to help them form the requisite sponsoring public or nonprofit entities (districts, cooperatives, etc.) and for preliminary engineering studies. Once the first two steps are completed, public financing may then be obtained for some portion of system improvements.

The major impetus for this approach came from an ad-hoc non-governmental group called the Rural Infrastructure Committee (RIC), formed in 1987 to help bridge the resource, regulatory and technical assistance gaps that small communities often encounter. RIC, comprised of representatives from state and federal agencies that fund and regulate water and wastewater systems and nonprofit assistance providers, meets regularly to assess specific small systems needs. Although it has been effective, the committee is only able to deal with a limited number of problems.

Farmers Home Administration Water/Sewer Program

The Arizona FmHA has dramatically increased annual water and sewer funding obligations since 1980. From 1980 to 1985, Arizona FmHA closed on only 40 projects totalling \$8.3 million. Obligations increased by three times between 1985 and 1990, totalling nearly \$27 million in loans and grants.

Arizona's annual FmHA allocation has averaged \$2 million in loans and \$670,000 in grants for the past five years. In Fiscal Years 1987, 1988 and 1989 FmHA obtained additional funding from the national pool. In FY 1987, pool monies constituted more than 25 percent of Arizona's program obligations. In FY 1988, 63 percent of the state's total obligations were

obtained from the national pool; loan obligations for that year totalled more than \$7 million. However, in FY 1989, FmHA obligated only 29 percent of its annual loan allocation and 104 percent of the state's grant allocation. Overall, it appears that the Arizona FmHA office is more aggressively expending its water and sewer funds.

Income targeting data show that the state has also increased the distribution of low-interest loans and grants to low-income communities. Between FY 1980 and FY 1990, 63 percent of FmHA loans were been awarded to communities at 80 percent of median income and above, while 30 percent was obligated to communities at or below 80 percent of median income. More than 60 percent of all loans and grants awarded to communities with incomes below 80 percent of the state nonmetropolitan median were awarded after FY 1984.

The state doubled its total grant obligations in FY 1990 by obtaining additional grant money from the national pool to finance sewer projects in two low-income communities.

Sewer projects account for more than 40 percent of all FmHA projects funded between 1980 and 1990. Many of these projects received joint funding from FmHA funds and EPA Construction Grants. FmHA funds were used to meet the local match and, in about half the cases, to provide a greater share of project financing for projects where additional grant monies were needed to supplement the declining Construction Grants share and finance ineligible project costs. CDBG funds have played only a minor role due largely to the regional allocation procedures described previously.

FmHA has requested that projects in most large districts (several of which are pending in the rapidly growing northwest part of the state) assume between 40 and 60 percent of the costs with privately placed assessment bonds. Without this condition, these projects would consume most of Arizona FmHA's annual allocation.

FmHA has made grant award decisions on a project-by-project basis and, as a result, grants have generally been used at the obligation stage to help eligible communities to come in with affordable debt service. Grant requests have continued to exceed available funds, and in FY 1990, the state had a backlog of applications totalling more than \$9 million in grants with less than \$1 million in its allocation.

FmHA has funded three completely new systems and four purchase/renovations of existing systems, although most FmHA funding requests are for system expansions and renovations. The SDWA amendments do not appear to have had a noticeable impact on funding requests. However, the

agency anticipates that it will receive an increasing number of sewer project requests because of the termination of the EPA Construction Grants program. In addition, an increasing number of rural areas experiencing rapid growth generated by tourism and retirement have been applying to FmHA for help in meeting their system expansion needs. Sewer requests and applications from rapid-growth areas could easily consume most of Arizona FmHA's annual allocations in the future.

FmHA could be much more effective in addressing critical rural water and sewer needs by providing funds to the small, privately owned water systems which account for most of Arizona's compliance problems. Nonprofit water associations could be formed — an option that owners appear to be amenable to — and systems could then secure FmHA funding for required improvements. The major impediment to this option is not funding availability but eligibility for public financing. Privately owned systems need technical and organizational assistance to establish nonprofit associations, incorporate, obtain appraisals and preliminary engineering assessments, and then submit requests to FmHA and DEQ. As indicated previously, this need has been addressed in only two rural counties with the support of the DOC CDBG staff for initial funding. Increased support for such strategies could significantly improve FmHA targeting of funds to low-income rural communities most in need.

State Revolving Loan Fund

According to DEQ staff, "small" communities of fewer than 25,000 persons have received 46 percent of all EPA Construction Grants since 1972. It is likely that small communities will receive a substantially smaller share of state revolving funds based on Arizona's SRF program proposal. Some smaller rural communities could not afford local-share costs during the federal grants program. Others borrowed for local-share funds and are currently paying as much as \$40 per month per capita in sewer charges. SRF loan repayment is unlikely to be affordable for many of these rural communities, and projected user rates of unsewered communities are estimated at more than \$80 per month.

Arizona was one the last states to establish its SRF and was one of only four states that did not receive a grant before September 30, 1989. Most of the delay can be attributed to political resistance by an increasingly urban-dominated legislature. Opposition to the SRF has come from Maricopa and Pima counties that view the program as an unnecessary and unwarranted subsidy to rural communities that should be made to qualify on the same market basis as their urban counterparts. For example, the SRF priority system initially provided increased points for communities with lower median

household incomes; this variable was later eliminated from the priority system because, it was argued, income is not an indicator of water quality or public health need.

The slow implementation of the SRF has occurred because the DEQ, which administers the Construction Grants program, is not a financing but a regulatory agency, limited to construction and management oversight. Although state legislators balk at a financing role for DEQ, no other agency with the requisite expertise or authority has been designated, or even allowed to be involved. The SRF enabling legislation established the Wastewater Management Authority, a seven-member governing board which consists of the Directors of DEQ and the Department of Health Services, the State Treasurer and four gubernatorial appointments to oversee the SRF program.

The Authority has proposed to issue \$26 million in bonds to meet the state match requirements and leverage the capitalization grant. Federal capitalization grants of approximately \$12.9 million for the first two years of the SRF, FY 91 and FY 92, will be used to set up a reserve fund and the interest from the reserve will be used to write down the interest rate of SRF loans. The first SRF loans will likely be offered at five percent interest, targeted to be equivalent to FmHA rates for poverty-level communities.

The Authority anticipates that urban communities will be the primary recipients of the first round of SRF loans. The projected SRF distribution is, in part, a result of the state's leveraging process. Since SRF loans will not be pooled, each community's bond issue will be separately rated. As a result, smaller rural communities will be responsible for borrowing to meet coverage and reserve requirements. Many will be unable to meet these requirements. Further, the SRF is not providing interim financing, and urban communities ready to proceed to construction will be able to borrow from the SRF.

The Rural Infrastructure Committee sponsored a major rural meeting on water and wastewater financing to generate rural support for the SRF, and helped to remove many of the "urban only" provisions. For instance, the Committee lobbied to limit the amount of funds that a community could borrow from the SRF. As a result, the enabling legislation prohibits any community from borrowing more than 30 percent of the fund balance.

The SRF enabling legislation limits targeting to lower-income communities. The statute requires that applications to the loan fund first meet environmental protection standards, with point dischargers receiving priority. Affordability and income issues may be considered as selection criteria only after projects are ranked in this manner. Based on Arizona's Construction Grants staff interviews, it appears that marginal rural projects requiring a combination of low-cost funding may have difficulty achieving SRF priority

compared to projects serving users with greater financial capability. In addition, the Arizona SRF has proposed stringent financial capability threshold requirements that may bar many first-time borrowers from eligibility.

Federal requirements for facilities planning and environmental impact studies further reduce the likelihood that small systems will gain access to SRF loans. SRF staff question the benefit of facilities planning, citing an example of an Arizona community that paid \$80,000 for a facilities plan that saved the community an estimated \$40,000 in sewage facility construction costs.

Smaller communities that need new collector sewers and treatment facilities represent a significant portion of statewide facility need, yet they are unlikely to afford SRF financing. SRF loans for such projects in communities with populations ranging from 3,000 to 10,000 would result in user fees estimated at \$35 to \$55 per month. It appears that most of these systems will never be built, since potential FmHA and CDBG grant participation may be insufficient to meet these needs.

DEQ staff assert that the SRF is not a viable financing mechanism for meeting the challenge of expanding effluent compliance requirements and health hazards created by failing on-site systems. DEQ staff have discussed proposals including relaxing system design standards and encouraging the use of innovative and alternative technologies. However, state officials are hesitant to encourage the use of innovative technologies in Arizona, unless an effective track record for these technologies can be demonstrated.

Summary

Arizona offers an illustration of the political weakness of rural communities in an urban-dominated legislature. Although state regulators were able to provide considerable data on rural water and sewer needs in Arizona, it is clear that state funding program priorities are not oriented toward addressing rural needs. Further, rural areas are not likely to obtain an increasing share of state-based funding — in the SRF, for example — because of competition from more financially capable urban areas and rural areas experiencing growth. The political dynamics in Arizona may continue to impede the development of programs that address rural needs.

At the root of many of the state's rural water and sewer problems are Arizona's zealous encouragement of private development and its insistence on a laissez-faire government role. Privately owned systems have been left

to deteriorate. Although many of these systems are not old by eastern U.S. standards, at 30 to 50 years of age they are badly in need of repair.

Both privately owned systems and systems managed by unincorporated entities are at a disadvantage when trying to obtain water and sewer project financing. Privately owned systems are not eligible for public financing, and few have the capability even to complete the paperwork required to increase user charges. Unincorporated areas are financially strapped and typically cannot meet the financial management conditions applied in the SRF. Overall, the lack of organizational and financial capability restricts rural systems' ability to take advantage of available funding and compete successfully for Arizona's limited funds.

There is a clear need for technical assistance programs to help rural water and sewer systems improve system management, establish nonprofit associations and file funding applications. Technical assistance would fill a critical gap in helping rural areas complete preliminary plans and needs assessments to obtain access to the limited amount of funding available in Arizona. The use of CDBG funds, for example, to help rural communities establish nonprofit entities fills a critical need by positioning them to become eligible for other state and federal funding.

Technical assistance to improve rural facility operation and management would also meet a critical rural system need in Arizona. Given the frequency of monitoring violations and water quality deterioration due to delayed capital improvements, technical assistance would help some systems maintain compliance and deliver safe drinking water to local residents. Technical assistance of this type could be a cost-saving measure, preventing system deterioration, helping systems to establish repair schedules, and aiding in the process of implementing user charge increases.

The importance of technical assistance is also evidenced in recent changes in Arizona FmHA funding patterns. FmHA staff in Arizona indicate that technical assistance efforts have enabled the state to develop a substantial backlog of applications and have increased the number of viable FmHA applicants. Moreover, technical assistance staff report that their efforts have contributed to the increase in FmHA low-income targeting that has occurred in the past five years. In addition, coordination among funding and regulatory agencies, focusing on wastewater treatment needs, has also helped to increase the overall size of the FmHA portfolio.

On a state level, rural communities clearly need advocates to ensure that rural needs are duly considered when funding and assistance programs are being developed. It is critical that rural needs are well documented and strongly presented so that the few funding programs in Arizona target some

monies to rural areas. The federally capitalized SRF is the clearest example of the conflict between rural needs and political influence in Arizona. When the state legislature was developing SRF program priorities, urban counties opposed the use of interest rate subsidies or rural set-asides. Urban opposition is representative of a statewide philosophy that every community must pay its way with little or no government subsidy. Moreover, the reluctance to use innovative wastewater treatment technologies might be reduced if advocates were able to demonstrate the effectiveness of such methods.

The existence of the Rural Infrastructure Committee may fulfill a rural advocacy role and help to increase the development of programs that address rural needs. The Committee appears to have been successful in some of its SRF lobbying efforts, primarily the 30-percent per applicant funding restriction. It is possible that, as the Committee reviews the outcomes of the SRF, additional concessions may be obtained to ensure that some funding is targeted to rural areas.

The Committee's success is seen in its efforts to redirect funding priorities in both the SRF and CDBG programs, increase communication and coordination among agencies, and increase attention to rural needs. Committee activity, however, is not a substitute for increasing the level of state funding available for water and sewer projects.

As urban areas increase their dominant position in Arizona, it is questionable whether the state legislature will take aggressive action to respond to rural needs. Some of Arizona's rural retirement communities do not require the subsidies needed by the state's lower income rural communities. But retirement and growth areas have considerable political clout in Arizona; their needs may overshadow those of other rural areas.

Focusing on technical assistance programs, rather than on increased funding, may better suit the interests of the Arizona legislature. Arizona, like many states, must carefully examine non-financing forms of assistance to address rural needs. From an advocacy point of view, less capital-intensive programs are a means of demonstrating that increasing local management capacity can ultimately save money. From a policymaker's viewpoint, a small investment can lead to improved public health and increased attention to the needs of a targeted population.

MINNESOTA

Minnesota is famous for beautiful lakes and abundant water resources. The importance that Minnesotans attach to preserving these resources is reflected in the state's impressive record of aggressive and innovative water quality protection programs. Most rural Minnesotans are served by public drinking water systems identified by tall water towers proudly bearing the name of the community responsible for providing the service. Municipal water and sewer service is recognized as a basic component of economic growth, a mark of progress.

With the exception of the Minneapolis-St. Paul metro area, Minnesota is still primarily a rural state. Of the 854 incorporated municipalities in the state, 80 percent have populations under 2,500. Communities of this size generally do not have a bond rating and have limited access to private credit.

Rural Water and Sewer Needs

Although water availability has not typically been a problem in the state, water contamination has increased in the past decade because of agricultural and industrial pollution as well as naturally occurring arsenic, radium and nitrates. According to the Department of Environmental Health, rural water system needs include upgraded treatment, system rehabilitation and development of new water sources. There are currently more than 700 community water supply systems statewide; 75 percent serve populations of less than 2,500. According to a 1988 report commissioned by the Department of Trade and Economic Development, an estimated \$42.8 million is needed for water system improvements throughout the state.

State regulatory staff report that the outstanding need for new sewage collection and treatment facilities is in communities of fewer than 2,500 persons. Most larger communities have already addressed their wastewater treatment needs with assistance through federal and state financial assistance programs. Approximately a third of those communities without municipal facilities are adequately served by on-site septic systems.

In addition to the need for new sewers in some parts of rural Minnesota, both large and small communities need to upgrade treatment plants and facilities to correct problems caused by poor management and erratic operation and maintenance, to address growth and to respond to new

standards. The Minnesota Water Pollution Control Agency (MPCA) estimates that Minnesota's current wastewater facility needs total \$1.1 billion.

Funding Resources

Since 1972, \$1.2 billion in EPA Construction Grants and supplemental state matching grants has been invested in Minnesota's wastewater facilities. State grants provided as much as 80 percent of eligible costs. Communities with populations under 25,000 have received a higher percentage of state grants than larger communities.

Many small communities did not receive federal grants because federal priorities favored large pollution control facilities in large communities. Approximately 40 percent of Minnesota's federal grant funds were allocated to the Metropolitan Waste Control Commission (MWCC) serving the greater Twin Cities area, which represents approximately 50 percent of the state's population.

The Minnesota legislature has supported innovations and new programs that address rural and urban Minnesota's wastewater facility needs. In 1987, the state legislature created the Public Facilities Authority (PFA) to administer all wastewater financing programs. The PFA is expected to ultimately serve as a single-source contact for wastewater facility financing. Applicants will submit applications to PFA and the Authority will identify appropriate and affordable funding sources for the project. The PFA has established working relationships with other funding agencies in the state and shares office space with the HUD Small Cities Community Development Block Grant (CDBG) program.

The state legislature also established the State Independent Grants (SIG) program for wastewater projects to supplement the federal Construction Grants program. SIG targets rural and urban needs such as on-site septic system improvements and replacement; combined sewer overflows; and continuation grants to complete federal grant-funded projects.

Minnesota communities also obtain water and sewer funding from the HUD CDBG, Iron Range Rehabilitation Resource Board (IRRRB) and FmHA Water and Waste Disposal Loan and Grant program. Each has made significant contributions to rural water and sewer development. For the past four years, between 30 and 50 percent of CDBG's annual \$18 million allocation has been directed to water and sewer projects. CDBG grants have been used both for municipal facilities and individual on-site improvements such as well replacement due to contamination. Many CDBG sewer projects address non-compliance projects.

Communities must raise water and sewer rates to "reasonable" levels before becoming eligible for CDBG grants. Water rates are targeted at \$1.25 per 1,000 gallons; sewer rates are targeted at \$18 per month.

The IRRRB derives funding from taconite ore production taxes and offers grants to support economic development in communities, counties and districts in the Iron Range region. Since 1977, more than 57 percent of IRRRB grants totalling \$64 million have been awarded for community water and sewer projects in the six-county region.

Farmers Home Administration Water/Sewer Program

Minnesota FmHA's program has a record of targeting low-income water and sewer needs and aggressively meeting the demand for water and sewer loans and grants. Between 1984 and 1990, the state obligated \$69.4 million in water/sewer funding, a 33-percent increase over the \$52.3 million allocated to the state. FmHA provided an average of \$9.9 million annually for water and sewer projects. Eighty-eight projects were funded during this seven-year period, with an average obligation of \$789,000 per project.

Between Fiscal Year 1984 and 1988, 40 percent of Minnesota FmHA funds were awarded to communities with incomes below poverty level (using the 1980 national poverty rate). Minnesota ranked second nationwide in providing funds to the lowest income communities. A total of 91 percent of all loans and grants went to communities with incomes below the state nonmetropolitan median household income (SNMHI). The average income of Minnesota communities receiving FmHA funds between FY 1985 and FY 1988 was \$11,299, below 80 percent of the SNMHI.

According to Minnesota FmHA, half of all funded projects have served poverty-level communities. Most recipients have low- or no-bond ratings. Although the Iron Range and southwestern sections of the state are the most economically distressed areas in the state, they have not received the majority of FmHA funds. To some extent, this appears to be a consequence of IRRRB's investment of \$64 million in the region's water and sewer facilities.

FmHA loans averaged \$368,916, and grant awards averaged \$276,306 between FY 1985 and FY 1988. Sixty-two percent of Minnesota FmHA projects received both loans and grants during this time period. More than 51 percent of projects receiving intermediate rate loans also received grants, and 38 percent of projects at 5 percent interest received grants. Among loan and grant recipients, grants averaged over 54 percent of project funding.

Funding awards have been targeted at \$5,000 per household. FmHA developed this benchmark by comparing the cost of on-site sewage disposal to central system project financing. User rates hover at \$20 per month per household, a figure considered reasonable by most state agencies. The average size of communities receiving FmHA funds was less than 2,000 persons, a community size with limited bonding capability.

Minnesota FmHA carries a large project backlog, ensuring that the state's annual allocation will be used and that the state will seek to draw additional funds from the national pool. In September 1990, eight projects were submitted to the national pool for loans and grants, and an additional 33 projects were listed in the project backlog. With a FY 1990 allocation of \$5.8 million in loans and \$3.38 million in grants, Minnesota's backlog as of December 4, 1989 was more than three and a half times greater than the state's allocation, totalling \$28.2 million in loans and \$5.8 million in grants.

Sewage collection and treatment projects have accounted for 40 to 46 percent of FmHA funded projects nationwide. In Minnesota, more than 77 percent of FmHA funds went to sewage collection and treatment projects between FY 1985 and FY 1988. This distribution exceeds the North Central regional average of 47 percent sewer project funding during this time period. At the same time, more than 49 percent of all sewer projects in the North Central region received joint EPA-FmHA funding, compared to less than 34 percent EPA funding participation in other regions.

Given the distribution of water/sewer project funding, it is unclear whether FmHA's track record is the result of strong regulatory enforcement, low-income targeting or federal/state construction grant funding availability. With 80 to 92 percent of project costs from state and federal construction grants, the remaining FmHA project debt service may have been affordable for many communities. As a result, demand from higher income areas for FmHA funds may have declined.

Lower income communities may have sought FmHA funds to cover local-share costs, contributing to the predominant sewer project distribution and number of low-income beneficiaries. Further, providing funding for local share may have allowed FmHA to spread loan funds among a larger number of projects. It is unclear whether MPCA targeting of rural and low-income communities contributed to the predominance of low-income recipients in the FmHA portfolio.

Approximately 90 percent of all FmHA-funded sewer projects received funds from other sources. Leveraging is a contributing factor among successful FmHA applicants. The termination of federal Construction Grants appears to have resulted in an increasing number of sewer project applica-

tions to Minnesota FmHA. In FY 1990 alone, FmHA submitted eight projects totalling \$6 million for national pool funds, the majority of them for wastewater projects.

Aggressive sewage disposal enforcement may provide further explanation for the FmHA water/sewer funding distribution. Eligibility for 5-percent loans is possible only when a facility is violating a health or water quality standard. This criterion is well defined for sewage disposal projects under enforcement order, and many wastewater treatment projects have received 5-percent loans.

However, few water projects have qualified for these low-interest loans, because the state Department of Health (DOH) is reluctant to correlate drinking water quality problems with imminent health risks. It appears that DOH, which is responsible for enforcing federal drinking water standards, has not developed a measure for health risks that meets both state and FmHA criteria. This may be due, in part, to the relatively new relationship between DOH and FmHA.

The predominance of sewer projects appears to result not only from aggressive enforcement but also from the presence of a strong state program offering both state and federal wastewater treatment grant funds. The wastewater treatment program is well organized and reflects good working relationships between state agencies.

Minnesota's water supply enforcement program, on the other hand, was established only within the past five years and offers no funding. Perhaps, as changing drinking water standards are implemented, an increasing number of water projects will be funded by FmHA.

State Revolving Fund

Minnesota, through the Public Facilities Authority, was the first state to aggressively leverage its state revolving loan fund, increasing the size of the SRF three-fold by using its federal capitalization grant to leverage additional monies. The state is also offering remaining Construction Grants and supplemental state grants through FY 1991 to help small, lower-income communities complete wastewater projects with 77.5-percent grant funding.

In spite of the state's predominantly rural composition, leveraging the SRF was made possible primarily because of the backing, commitment and financial need of the MWCC, which serves the Minneapolis-St. Paul metropolitan area. Minnesota's Public Facilities Authority, the SRF finance arm, was able to obtain competitive interest rates and issue lower risk double-

A rated revenue bonds because of MWCC's triple-A rating and its commitment to borrow 50 percent of SRF loans.

MWCC participation allowed PFA to spread credit risk, increase the size of the loan pool and finance both MWCC and lower- and un-rated communities with SRF loans. In addition, MWCC participation enabled the state to meet first-use requirements for FY 1989 and FY 1990, since MWCC projects met federal National Municipal Policy (NMP) compliance criteria. This created a two-year time period for the state to develop a strategy to address other NMP projects.

Remaining noncompliance problems in Minnesota exist among facilities located in communities of fewer than 1,000 persons. Many were unable to supplement local share costs with federal and state grants. SRF debt service will also be unaffordable for the majority of non-compliance projects because of physical facility requirements and financial limitations. The state estimates that 20 of the 30 NMP projects will not be able to develop financially feasible projects that meet compliance standards. The 20-percent local-share costs of one NMP project, for example, would result in user rates equal to two and one-half percent of median household income without achieving water quality standards, even with combined state and federal Construction Grants covering 80 percent of project costs.

MPCA has identified another 70 municipalities with populations fewer than 2,500 that have wastewater treatment needs. Of these, more than half have median household incomes that are less than 75 percent of the national median household income. These communities are unlikely to be able to afford SRF debt repayment.

Minnesota is developing a comprehensive wastewater facility program that combines management, training and technical assistance to address both short- and long-term facility needs. The state anticipates being able to offer additional funding via low-interest loans and grants where needed, given support from the state legislature. In addition to providing affordable financing, assistance will be provided to ensure continued compliance through capital planning and operation and maintenance planning.

Following are the highlights of Minnesota's SRF program, including proposed activities intended to support and protect the integrity of the loan program:

- By aggressively leveraging — selling revenue bonds using federal letters of credit as security — MPCA increased the volume of available loan funds from \$19 million to \$48.4 million

in FY 1989. The state anticipated that approximately \$73 million would be available in FY 1990 as a result of leveraging.

- Minnesota is offering supplemental State Independent Grants targeted to rural and urban needs, including on-site septic systems, combined sewer overflows, corrective action and capital costs. The amount of funding available is dependent upon state appropriations.
- SRF loans were issued at an average 5.21-percent interest rate in FY 1989.
- The SRF subsidy system is structured so that the state can respond to all requests for loan assistance. Distribution of funds to small communities and financially needy areas is encouraged by increasing subsidy levels given to: 1) smaller communities; 2) areas with lower median household incomes; 3) areas with high user rates relative to median household income; and 4) areas where the poverty level is above the national average.
- The SRF program allows interest payments to be waived prior to facility construction for small communities. Large communities are required to begin paying interest upon completion of the loan agreement.
- SRF offers interest-free loans of up to \$500,000 for "hardship" projects in areas that are experiencing population decline, have poverty levels exceeding national average, and user rates in excess of 1.5 percent of median household income.
- MPCA has used state construction grants to meet the pressing need of small communities unable to complete projects solely through the SRF.
- MPCA is financing projects with both SRF loans and Construction Grants by creating separate project segments (such as collector sewers and treatment facilities) to increase project affordability. This allows the state to offer 77.5-percent grants, from both federal and state sources, to cover one project segment.
- MPCA has negotiated maximum annual loan amount for MWCC projects of \$40 million in FY 1989 and \$65 million for FY 1990. This ensures the distribution of funds to other projects, while enabling the state to leverage SRF.

- MPCA has proposed to develop a special technical assistance program to address management and operations needs of small systems, and to reduce the number of future compliance problems.
- MPCA has developed and implemented a team project management approach drawing staff from technical, regulatory and financial fields.

Summary

Although Minnesota is a primarily rural state, the existence of a major urban center provides the state with some advantages, as evidenced in the operation of its SRF. In contrast to West Virginia and Arizona, Minnesota has been able to accelerate compliance with federal SRF requirements by targeting the majority of SRF loans to the Minneapolis-St. Paul metropolitan area. Yet this practice has not precluded rural and low-income facility targeting within the SRF. Rather, it has enabled the state to leverage the SRF, selling a bond portfolio that contains both the highly rated urban area and some non-investment-grade rural community projects. This kind of leveraging works primarily because the state has a major urban center; thus it is a tool that is unavailable to West Virginia.

State officials are working together to develop programs that will help all Minnesota communities develop and manage adequate water and sewer systems. For example, the Public Financing Authority is expected to serve a clearinghouse role, providing funding applicants with "one-stop shopping" and directing them to the most appropriate and affordable funding programs. And by creating an institutional framework for coordinated project funding, staff will have an opportunity to learn about the characteristics that make projects successful as well as the impediments to developing affordable financing in low-income communities. This approach should also be beneficial to applicants by streamlining the application process and helping applicants to leverage funding from several sources to complete projects.

Minnesota wastewater treatment regulators are also developing non-financial assistance programs to address both rural and non-rural facility needs. State officials are concerned, for example, that few communities have the financial capability to implement the capital projects that are required under the Clean Water Act. As a result, SRF staff are developing a technical assistance program to help communities develop capital improvement plans and improve facility operation and management. Ultimately, these measures may reduce the amount of funding that facilities must borrow while helping

facilities to maintain regulatory compliance. Attention to facility management addresses a critical rural need.

Some rural wastewater facilities in Minnesota may, however, face stiff penalties for noncompliance. In spite of aggressive funding programs and technical assistance, SRF staff report that federal requirements necessitate the development of very costly capital projects. SRF staff do not believe that it is feasible for very small, rural communities to finance required improvements. At issue is whether the environmental benefit created by such improvements outweighs the capital investment. SRF staff argue that such communities should be allowed to phase-in required improvements without facing penalties for less than 100-percent compliance. Whether federal regulators will agree to such an approach is unclear. Examples of such projects would help federal regulators and policymakers to evaluate the impact of changing regulations on rural facilities.

Minnesota's strong wastewater facility organizational structure appears to have had an impact on Minnesota FmHA's funding portfolio. It is interesting to note that FmHA not only has a consistent pattern of sewer project funding but also has a successful track record of targeting lower income communities. It is difficult to determine whether the power of Minnesota's wastewater agency infrastructure has restricted rural communities' ability to develop or improve drinking water systems. Certainly, the presence of IRRRB funding in the one of the poorest rural areas in Minnesota has filled a significant need for water and sewer funding that might otherwise have been directed to FmHA.

The critical question in terms of Minnesota's drinking water needs is whether the relatively young state drinking water agency structure will have less political clout than the wastewater agencies. State drinking water staff appear to have only limited data on drinking water needs and little or no experience with project funding. While the wastewater agency network is likely to lobby successfully for funds to implement financing and technical assistance programs, the drinking water agencies may be less adept at promoting their needs. Wastewater staff possess both regulatory and financing skills and may also be more sophisticated in developing new programs and taking advantage of federal funding.

As Minnesota's wastewater regulators and funding agency network prepare to lobby for new state programs or additional funding appropriations, the state's drinking water staff should conduct a thorough evaluation of drinking water needs. Officials are broadly aware of the nature of system problems, but they would benefit from additional needs documentation. Discussions with Minnesota technical assistance program staff indicate that water shortages are a growing problem in the state, but drinking water staff

were able to provide little information on this need. Minnesota drinking water staff should become part of the institutional network established among the state's wastewater regulatory and financing agencies so that water and sewer needs may all be served by the state's innovative programs and generally progressive attitude.

WASHINGTON

The state of Washington can claim a long-term commitment to environmental infrastructure. Since the 1970s, the state has committed more than \$1.5 billion in municipal facility planning and construction. State water and sewer funding programs have historically been capitalized with statewide user fees and taxes, approved by voter referendum. Three new state public works funding programs have been established since 1985, offering more than \$95 million annually in grants and low-interest loans.

Rural Water Needs

Washington has the fifth highest number of public water systems in the nation. Only 175 of the state's 13,000 public water systems serve more than 1,000 connections. Ninety-eight percent of Washington's water systems are small, some serving as few as two households. Washington's small water systems, however, supply drinking water to 10 percent of the state population.

Washington Health Department staff have limited hard data on rural water needs because the state has historically focused its compliance efforts on the state's larger water systems. Small water systems have been required to test for water quality contaminants with less frequency than large systems, and systems serving fewer than 500 persons have not been required to employ a certified operator. With the pending implementation of the 1986 Safe Drinking Water Act amendments, the state has begun to develop a strategy to evaluate and address water system needs throughout Washington. As the state assesses the condition of all water systems, regulatory requirements for small systems are likely to change.

Small water system needs in Washington reflect small water system needs nationwide. Eighty percent of all small systems are privately owned. Only 10 percent are investor-owned, with the remainder managed by

nonprofit associations, cooperatives and mobile home parks. Operational problems are common among privately owned small water systems. State regulators say that system managers have little knowledge of drinking water regulations or drinking water monitoring or reporting requirements. The state has had difficulty monitoring and evaluating the condition of many small privately owned systems when system owners cannot be located and no one is known to be responsible for system management. Addressing privately owned water system needs in Washington is constrained because state statutes prohibit private systems from obtaining public financing.

State health department staff report that operation and management problems among small water systems are often the cause of system noncompliance. The incidence of violations for bacteria is triple that of large water systems. Between 1983 and 1986, more than 70 percent of all small water systems, on average, violated monitoring and reporting requirements for bacteria. State officials say that when systems violate monitoring requirements, it is likely that water quality is not meeting federal standards; but no reports are available to document water quality among violating systems.

Infrequent monitoring and reporting is a problem of insufficient staff resources and insufficient user charges, according to state officials. Small water systems often do not employ a certified water system operator, and privately owned systems may not employ a system manager. State staff assert that small systems do not employ qualified staff because system owners frequently do not understand management and compliance responsibilities.

Small systems typically charge insufficient user fees to cover the actual cost of system operation and management. State health department staff contend that some small systems do not adopt budgets or keep written records of revenues and expenses, and do not increase user fees because they fear repercussions from homeowners. Because small systems cannot achieve economies of scale, state officials recognize that it may not be feasible to raise user fees sufficiently to cover the actual cost of system operation and management among systems serving low-income households.

Little information is available on the cost of meeting small system compliance needs. In 1983, the state legislature commissioned an analysis of Washington's public works financing needs; 337 jurisdictions supplying drinking water responded to the public works survey, with an average size of 4,000 connections. The systems estimated that \$470 million was needed to finance critical system improvement projects. More than half of all funding was needed to construct new storage tanks and to extend transmission and distribution lines to serve new customers. The 1983 Public Works Report does not distinguish between small and large system needs.

Rural Sewer Needs

According to the 1988 EPA Needs Survey, Washington's current wastewater facility needs total more than \$2 billion. The Washington Department of Ecology (DOE) estimated a significant undocumented need of \$142 million in 1988, primarily for new collector sewers. DOE staff report that both metropolitan and nonmetropolitan areas must undertake treatment facility improvements to meet Clean Water Act standards. However, smaller communities and rural areas must also address problems of inadequate individual septic systems by constructing new sewer collectors or replacing individual systems.

Like many states, Washington's largest metropolitan area has the greatest dollar need for wastewater treatment funding. Most of the Seattle metropolitan area receives only primary wastewater treatment and is currently under court order to meet secondary Clean Water Act standards. DOE estimates that it will cost \$750 million to bring Seattle into compliance with federal treatment standards.

DOE staff report that many of the smaller wastewater facilities in the state are in violation of permit standards because of inadequate treatment or poor operation and maintenance. State officials explain that smaller facilities tend to lack sufficient operating revenues to properly maintain facilities in compliance. Moreover, the small customer base of such facilities limits their ability to finance needed capital improvements *and* cover the costs of facility operation and maintenance.

DOE staff do not believe that the state revolving fund will offer a viable financing mechanism to help facilities with very small customer bases to meet federal standards. DOE anticipates that some small jurisdictions will be unable to afford SRF loans even at zero-percent interest, or to meet operation and maintenance costs with 100-percent grants. DOE recently reviewed a project serving 200 persons in which operation and maintenance costs alone exceeded 1.5 percent of the community's median household income.

Many rural households rely on individual waste disposal systems. Nonpoint source pollution from failing septic systems and agricultural runoff is a critical problem in rural areas, according to DOE. As indicated by the 1988 supplemental state needs estimate, many rural communities require new sewage collection facilities but have not documented their facility needs. The state reports that, for some rural households, replacement of individual systems is a feasible option.

Funding Programs

Approximately \$140 million is available annually for Washington's water and sewer projects. Most of these funds are made available from state funding programs, with the balance from federal programs. Washington water and sewer funding programs are characterized by their accessibility and sensitivity to local capabilities. For example, the Public Works Trust Fund (PWTF) conducted aggressive public participation programs before drawing up program priorities and guidelines, and PWTF uses concise, easy-to-follow loan applications and informational materials.

Eligibility for state loans and grants is restricted to public entities. Most state funding programs require that applicants provide a local match obtained from local funds or other funding sources to demonstrate community support and long-term commitment to the project. Recipients are generally expected to charge reasonable user fees for water or sewer service (not more than 1.5 percent of median household income). Although financial need, regulatory compliance and public health impacts are considered in award determinations, no state funding is specifically targeted to rural communities.

The most innovative of Washington's public works funding programs, the PWTF, was established in 1985 to address needs identified in the state's 1983 Public Works Report. The PWTF is a revolving loan fund, offering approximately \$50 million annually in 20-year loans at 1-, 2-, and 3-percent interest. Funds may be used only for improvements to existing facilities (bridges, roads, domestic water, sanitary sewer, storm sewer), not for new facility development.

The PWTF priority system is structured to promote improved facility management and capital planning. Rather than rewarding applicants with increased points for noncompliance, applicants receive higher priority scores when they can demonstrate sound management practices and local effort to prevent facility deterioration. PWTF applicants are required to submit five-year capital improvement plans to show that plans are in place to protect PWTF's investment in facility improvements. In addition, lower interest loans are awarded to those that commit a larger share of local funds (whether from other funding sources, user fees or taxes) — another example of rewarding applicants that demonstrate organizational capability.

Washington's drinking water matching grant program, which in past years provided as much as \$7.5 million per utility for water supply planning and construction, is in its final years and currently provides funds primarily for emergency and compliance-oriented projects. An estimated \$1.5 million

is currently available in this program for water shortage remediation and prevention.

The state legislature established the Centennial Clean Water Fund in conjunction with creating priorities for its federally-capitalized SRF. The Fund, which offers \$45 million annually in low-interest loans and grants, was created to provide financing for ineligible SRF costs and to write down the costs of SRF-funded water quality projects to increase project affordability. Fund priorities parallel those of the SRF, and the state anticipates that the Fund will ultimately be the permanent source of wastewater facility financing as SRF loan repayments revolve and are no longer required to meet federal requirements.

The Washington Housing and Urban Development Small Cities Block Grant (CDBG) program, with an annual budget of \$8.5 million, appears relatively small in contrast to the public works funding offered by state programs. Eighty-five percent of CDBG funds are used for public facilities projects. CDBG staff report that demand for water and sewer grants has consistently exceeded the amount of funding available. Because considerable state water and sewer funding is available, CDBG grants are awarded to projects serving very low-income areas. CDBG staff report that theirs is the only funding program in the state that fills two niches: offering 100-percent grants and awarding grants only to very low-income communities. As a result, CDBG carefully evaluates grant requests and awards funds for projects that help very poor communities gain access to critically needed water and sewer facilities. CDBG grants are often used to supplement PWTF and Farmers Home Administration (FmHA) funding, sometimes reducing the amount of funds that must be borrowed.

FmHA Water and Waste Disposal Loans and Grants play a much smaller role in overall state water and sewer financing. Washington FmHA receives an annual allocation of approximately \$6.1 million in loans and grants, just more than a tenth the PWTF's annual allocation. PWTF applicants, moreover, may receive up to \$2.5 million in low-interest loans, nearly half FmHA's annual loan allocation.

FmHA is the only funding program in the state that, by statute, is targeted to rural and low-income facility needs. However, an analysis of Washington FmHA operations and funding distribution shows that the agency is not fulfilling this vital role. It is questionable whether *any* funding organization is focusing on rural needs in Washington.

Farmers Home Administration

While Washington FmHA receives applications requesting loans and grants exceeding the amount of funds available, the agency has been unable to obligate its entire allocation in recent years. Projects that might have received FmHA funding have often received state funding at more favorable interest rates, such as those offered by PWTF. With an annual allocation of \$6.1 million in low-interest loans and grants, Washington FmHA obligated only 68 percent of loan funds in 1987, and returned \$2.9 million and \$2.3 million respectively in unspent loan and grant funds to the national pool in 1988 and 1989.

Washington FmHA's role as a source of water and sewer funding for rural low-income communities is dwarfed by the plethora of state funding programs. In particular, obtaining FmHA funding is a more complex and time-consuming process than receiving funds from the PWTF or Centennial Fund. FmHA uses a comparatively complex application process, burdened with numerous federal rules and requirements.

FmHA applications are processed on a first come, first served basis, reviewed for completeness, loan and grant eligibility, and priority rating, and acted on within 90 days. FmHA probably offers the fastest preliminary funding decision turnaround in the state of Washington. Unfortunately, this does not mean that FmHA is able to obligate its funds in a timely manner.

FmHA itself often delays the application process by requiring engineering design revisions to reduce overall project costs. In some cases, state health department staff report that FmHA requests engineering revisions because facilities are indeed over-designed and can be feasibly developed at lower cost. However, state health department staff contend that, in some cases, FmHA's motivation to revise engineering design has more to do with financing considerations than with appropriate water or sewer system design. FmHA staff appear to agree that one of the main reasons for requesting design changes is to reduce project debt service and to increase overall project affordability. Further, interviews with FmHA staff suggest that reducing overall project costs is one method the agency uses to ensure that several projects may be financed from its relatively small state allocation.

In spite of FmHA's relatively fast funding decision turnaround, applicants often delay taking on FmHA obligations. FmHA staff report that applicants generally prefer to submit requests for state funding because of the relative abundance and affordability of state grants and low-interest loans. Applicants that successfully leverage funds from other sources often turn down FmHA funding. Because FmHA is essentially competing for applicants

with state funding sources, FmHA's ability to consistently spend its annual allocation depends upon applicants' failure to obtain other funding. Funding agency staff throughout Washington, including FmHA, report that FmHA is the last resort for many applicants, since a greater volume of affordable funding is available in state programs.

FmHA is the only funding program in Washington that accepts applications on an ongoing basis. The agency reports that this makes FmHA the "odd program out" because FmHA applicants put the agency on hold while awaiting other funding agencies' award decisions. FmHA applicants that are successful in obtaining state funding may — if they do not reject FmHA funding outright — request a lower amount from FmHA to cover the balance or local-match requirements that are not financed by the state program.

What happens when FmHA applicants withdraw their requests because they have received project funding from another program? In Washington, FmHA often has no other viable applicant that is ready to borrow remaining funds. FmHA maintains a small backlog of water and sewer applications and has few projects to select from. As FmHA moves down the list of potential projects, funds may not be committed because applicants have not completed all application requirements.

The most common reason that funds are not obligated to projects in the FmHA backlog is the mismatch between applicant funding requests and FmHA funding eligibility. FmHA reports that lower income communities have a higher overall financial need for grants, exceeding the amount available in the state's allocation. FmHA reports that, with scarce grant dollars, lower priority projects are usually funded out of the backlog because such projects can be matched to FmHA loan and grant availability.

In a sense, FmHA funding is filling a financing gap for communities but without serving to finance capital projects. It is difficult to determine whether FmHA's pattern of financing primarily small loans benefitting mid- to higher- income communities is the result of FmHA's role as the funder of project balances or FmHA's need to spread its limited allocation among several projects.

Assessing FmHA Targeting

Between FY 1985 and FY 1988, 20 percent of Washington FmHA funds went to poverty-level communities. Of the 65 projects funded during this time period, 43 percent were located in communities with median household incomes *above* the state nonmetropolitan median household income (SNMHI). The average income of FmHA recipients was 114.4 percent of the SNMHI.

While the state record may be criticized for its lack of low-income targeting, the composition of loan/grant recipients may be a means to stretch limited funds. With a relatively small state allocation, the entire loan/grant fund could easily be used to finance one sewer project in a poverty-level or very low-income community. Demand for grant funds often exceeds the amount of grant funds available, and Washington FmHA is providing funds primarily to applicants with limited grant needs. More than half of all FmHA grants were awarded to projects with community incomes above poverty level and below 80 percent of SNMHI.

Washington FmHA staff say that loans are relatively small, averaging \$330,471 between 1984 and 1987, compared to a national FmHA loan average of approximately \$440,000. They point out that many FmHA applicants request only a small share of funding to cover the unfunded balance of a project that is also receiving state financing. FmHA reports that many such applicants are not eligible for grants because the debt service of repaying small loans is within FmHA debt service limits.

The FmHA loan/grant portfolio can also be viewed as an approach to distributing a relatively small amount of loan funds and an extremely limited amount of grant monies among several recipients. Between 1984 and 1987, the majority of FmHA loans were relatively small, issued at intermediate interest rates and were not accompanied by a grant obligation. During this same time period, FmHA issued an average of four grants each year, averaging \$473,660. More than half of all grant recipients received a minimum 60-percent grant funding.

Discussions with Washington FmHA staff indicate that the agency has been frustrated by its inability to compete with effective and affordable state funding programs. The agency has recently started to coordinate with other funding agencies in the state, and the FmHA Water and Sewer program chief is currently the president of Washington's Intergovernmental Public Facilities Finance Committee, a networking effort to increase local government knowledge of available funding opportunities. FmHA has identified several important roles that the agency fills that may complement state funding programs: first, FmHA is able to turn around funding decisions quickly and can supply urgently needed funds to qualified applicants; second, FmHA is one of the few programs that offers grants, and FmHA has demonstrated that grant awards can indeed be substantial as a share of overall project costs; and FmHA funds may be used to help the very lowest income communities in the state obtain access to affordable financing, a claim supported by an increasing share of funding issued to poverty-level communities in the past five years.

It is instructive to consider FmHA's position in contrast to other funding agencies in Washington when evaluating the effectiveness of FmHA

targeting. While no other agency theoretically restricts funding eligibility to rural, lower income communities, many of the state's programs offer affordable financing that may out-compete FmHA. Washington FmHA's relatively poor track record of targeting poverty level communities, however, is less likely to be the result of affordable state financing and more likely to be the result of FmHA's grant limitations. It appears that most of Washington's funding programs, including FmHA, help small, middle-income applicants to develop affordable projects. Perhaps competition from state funding programs will push FmHA into aggressively carving out a niche as the primary funding source for very low-income rural communities.

State Revolving Fund

Since 1972, more than 1,000 water pollution control grants have been administered by the state of Washington. A combined commitment of more than \$1.2 billion in wastewater treatment facilities serving both large and small communities has been made available from federal Construction Grants and DOE funds. Beginning in the late 1970s, DOE offered 15-percent state supplemental grants in conjunction with projects receiving Construction Grants assistance. Some applicants received as much as 92 percent of total project costs in grant funds, from a combination of state and federal Construction Grants with Innovative/Alternative (I/A) technology bonuses.

Washington's state legislature has continued to show support for innovative and generous wastewater facility funding programs with the establishment of its federally capitalized SRF and companion Centennial Clean Water Fund. The SRF offered approximately \$20 million in FY 1990 funds and a total of \$130 to \$160 million through FY 1994. The Centennial Fund offers \$45 million annually in low-interest loans and grants to supplement SRF-funded projects.

Washington established its SRF in 1988 and received its first federal capitalization grant for FY 1989. The loan fund was phased-in, as allowed by federal guidelines, so that the state could continue to use Construction Grants to complete ongoing projects through FY 1990. The debt-free state match for the SRF federal capitalization grant was derived from a state tax on tobacco products.

Washington's SRF program is accessible and simple. Program documents are clearly written, and the application process has been streamlined. Indeed, Washington's SRF marketing brochure has been used as a model elsewhere because of its non-bureaucratic "user-friendly" style. Aside from their main function as a means of reviewing applicant viability, several SRF documents also have an educational purpose. For example, each

applicant must complete financial capability forms to determine project affordability and identify the need for additional grants or interest rate subsidy. The forms are designed to help applicants learn about budgeting and accounting and provide a way for SRF staff to address financing and management issues.

While the SRF structure targets rural wastewater facility needs to some extent, the Washington SRF is overwhelmingly targeting funds to larger, more financially capable municipalities. SRF interest rates are based on loan term, not on financial capability. Borrowers may obtain 5-percent loans for 15- to 20-year terms; 4-percent rates for 6- to 16-year terms; and zero-percent interest for terms of five years or less. This initial interest rate structure will be offered until 1992, when rates, again based on loan term, will be 75 percent of the market rate for 15- to 20-year terms and 60 percent of market rate for loan terms under 15 years.

Washington is one of six states nationwide that directly provides SRF interest rate subsidies for shorter loan terms. SRF staff report that the intent of the interest rate structure is to accelerate the volume of loan repayments returning to the fund. Clearly, Washington views the federally capitalized SRF as a vehicle for increasing the volume of funds available for financing wastewater facility projects in the state. SRF repayments will ultimately be absorbed into one revolving fund within the Centennial Fund, with a companion grant program capitalized from state appropriations.

Rural facility targeting in the Washington SRF takes two forms: first, 10 percent of SRF funds are set aside for nonpoint source projects, primarily a rural need; and second, no applicant may receive more than 50 percent of all funds available in each SRF category. Competition for SRF priority and funding is restricted to applicants within each category. Therefore, nonpoint source project applicants are not competing with others for SRF funds.

Washington SRF projects may be funded in one of three categories. Funding allocations for each category reflect the proportion of facility need in the state, based on DOE facility needs estimates: 1) water pollution control facilities (80 percent of SRF); 2) nonpoint source (10 percent of SRF); and 3) estuary pollution (10 percent of SRF).

Washington is one of the few states that is actively using a nonpoint source category to address rural facility needs. Through the SRF, the state may award loans to county governments to set up revolving loan funds for on-site septic system replacement or rehabilitation. In effect, the state has established a pass-through mechanism to provide public financing for private households.

The county-level approach to addressing rural wastewater facility needs provides another benefit, in that it turns system management responsibility over to the county government. The county may be a more effective manager of individual systems and of rural systems overall. Washington SRF staff highlight the concept of county loan fund projects at SRF workshops to encourage applicants to assess the feasibility of on-site alternatives. To date, the state has made one award to a county government for on-site system loans.

The nonpoint source category also allows the state to promote the use of low-capital and low-maintenance cost wastewater facilities. The SRF makes financing of private systems possible, providing a more affordable alternative than municipal facility development. Rural municipal facility project financing would be considerably less affordable under the SRF since new sewer collectors are a restricted cost item. Further, communities that construct municipal facilities must also obtain funds for treatment plants. Given that Washington's largest urban area has an urgent need for upgraded treatment, it would be unlikely that rural communities would achieve funding priority for treatment facility projects. Hence, the nonpoint source category provides an accessible and affordable means of addressing rural wastewater facility needs with SRF funds.

The size — nearly 80 percent of the SRF — of Washington's water pollution control facilities category reflects the state's predominant dollar need for facility improvements of this type. The category will be used to finance sewage treatment facilities serving larger metropolitan areas, including a share of the Seattle metropolitan area's sewage treatment needs. DOE staff report that some smaller communities may receive loans for treatment plant projects, although the needs of the state's urban areas will receive top priority in the early years of the SRF. The 50-percent per category funding restriction in the SRF was designed to ensure that funds in each category would be awarded to at least two projects annually.

The SRF targets applicants with greater financial need within the SRF priority system. SRF ranking is based on two separate criteria: environmental needs and financial needs. Priority scores are higher for projects that serve communities with limited financial capability, defined in terms of projected debt service costs, community income, ability to obtain other affordable financing, and other factors. The highest priority points for SRF projects will be awarded for financial need when applicants demonstrate that an SRF loan is needed to reduce annual user charges to 1.5 percent of median household income. Projects that would result in 1 percent median household income user charge rate receive lower priority in SRF scoring. The 1.5 percent guideline is maintained by most EPA and state environmental staff as the threshold of affordability for wastewater projects.

SRF staff evaluate the need for wastewater financing interest-rate subsidies by evaluating the ratio between projected user charges and median household income. When user charges would exceed 1.5 percent of median household income, SRF staff take several actions to try to increase project affordability. When possible, staff will recommend engineering design changes that reduce overall project costs. Staff may help applicants to establish user charge increases so that escrow funds may be increased to reduce financing needs. Finally, SRF staff will help applicants to obtain grants or low-interest loans from other state and federal funding agencies to write down project costs.

Centennial Fund loans and grants were established specifically to help SRF applicants develop affordable projects. SRF borrowers may use grants from the Fund to write down loan costs to the equivalent of 55-percent grants — the same share that was available in Construction Grants from 1984 to 1990. The Fund offers 50-percent matching grants for SRF loans for up to 75 percent of eligible project costs to help local communities meet water quality, public health and safety requirements. An additional 15-percent grant may be awarded to applicants that might otherwise be unable to repay SRF debt.

In addition to the Centennial Fund, DOE is providing technical assistance to very small communities to improve facility management and increase project affordability. Designated DOE staff are providing budgeting and financial management counseling and helping facilities to develop capital improvement plans. Technical staff are reviewing facility management plans and working with operators to increase their knowledge of regulatory requirements.

DOE staff report that, to a large degree, the SRF is not an appropriate financing mechanism for small wastewater facility needs. Until the federal capitalization period ends, SRF staff are encouraging small facilities to obtain affordable funding from the PWTF, Centennial Fund, and other state funding sources that do not require compliance with federal requirements that can increase project costs by as much as 25 percent.

Ultimately the Centennial Fund will enable the state to help smaller facilities obtain affordable financing for wastewater compliance projects. The Fund is structured to provide low-interest loans and grants because the state recognizes that smaller facilities will be unable to finance projects without grant subsidies. State officials have therefore developed an SRF financing structure that accelerates compliance with federal requirements as a means of increasing the volume of loans that may be offered from the Centennial Fund for wastewater projects.

Summary

Washington state has long been recognized as a laboratory for many innovative state programs. State regulatory staff and funding officials appear to be genuinely committed to developing and implementing programs that are accessible to municipal officials. The straightforward character of state documents and application materials is evidence of the state's commitment to communicating program policies and priorities clearly. A multiplicity of state financing workshops, videotapes and other educational materials help to promote interaction between state officials and local government staff.

The Public Works Trust Fund is perhaps the best example of Washington's approach to operating a responsive community development program. The director of the PWTF is a former mayor who helped to develop the program while still a local government official. He provides direct technical assistance to community officials that are preparing PWTF applications and establishes program criteria so that even the very smallest communities can comply with application requirements.

The management emphasis of the PWTF program is tied directly to PWTF goals. The PWTF was established to help municipalities improve decaying infrastructure. Program priorities stress the importance of protecting capital investments in public works with strong local management. The PWTF is one of the first programs to reward applicants that demonstrate a commitment to keeping facilities in good working order.

By comparison to the PWTF and other state funding programs, the FmHA program operates at a disadvantage. The program has retained a federal, more bureaucratic character. Washington FmHA offers a relatively small amount of funding annually, representing less than a twentieth of the total amount of water and sewer funding available statewide on an annual basis. Moreover, PWTF, Centennial Fund and SRF rates are competitive with FmHA. Washington FmHA is trying to increase its stature within the state funding network by taking a more active role among the interagency financing network and by providing more technical assistance to applicants with the services of the Washington Rural Water Association and the Rural Community Assistance Program.

Washington's CDBG program fills a special niche among state funding programs, since it is the only source of 100-percent grants. The CDBG program has been able to establish a track record by providing critically needed supplemental funding to projects that receive the majority of project funding from other sources. CDBG has recently begun to provide supplemental grants to projects funded by PWTF, a link made smoothly because the

CDBG and PWTF programs are both operated by the Department of Community Development. Because FmHA has only a limited share of grant funds, the agency has less flexibility in offering 100-percent grants for projects funded by PWTF or other state loan programs.

The existence of state funding programs and policies must also be considered when evaluating the targeting methods used in the Washington SRF. On the surface, the SRF is clearly targeting most of its loan funds at considerable subsidies to larger municipalities. The SRF funding structure is in fact a mechanism for increasing the volume of funds that the state may ultimately offer in its Centennial Fund. State wastewater funding is being and will be offered essentially as 55-percent grants, no different from the FY 1990 Construction Grant share. Therefore, the federally capitalized SRF is a conduit for enhancing the state's funding program rather than taking the place of a state funding program for wastewater compliance projects.

In spite of the abundance of low-interest loans and grants in Washington, it is difficult to determine whether the state is adequately targeting rural water and sewer needs. The only evidence of rural facility needs targeting is the 10-percent SRF set-aside for nonpoint source projects. It is important to note that the SRF is the first funding program in Washington to circumvent state statutes prohibiting private individuals from obtaining public financing. Therefore, when evaluating the SRF, Washington is indeed meeting a critical rural facility need in its nonpoint source category, a model that may be used by other SRFs to address such rural needs.

However, no other state regulatory or funding program specifically targets rural needs. The Department of Health is currently evaluating the status of small water systems and will use this data to determine whether the state will take on a more active role in addressing small system needs. Interviews suggest that state officials will not distinguish between small and rural water system needs when developing programs to address small water system problems. DOE staff are not assessing rural and urban needs separately when developing wastewater facility funding programs. Rather, the state is looking at system needs primarily in terms of size of population served and financial and management capability. Individual facility needs are recognized by state officials as a small and rural community concern.

It would be instructive for analysts to take a critical look at the characteristics of projects that receive funding in Washington's programs to determine whether the lack of rural targeting is restricting rural communities' ability to take advantage of state subsidies. Interviews with state and federal staff suggest that most programs are indeed accessible to all public jurisdictions in the state. However, it is unclear whether entities that lack municipal water and sewer systems are able to make use of state funding. FmHA staff,

who have the greatest experience with projects of this type, say that most rural communities require technical assistance to develop feasible projects so that they can compete effectively with more experienced communities. Perhaps the recent technical assistance efforts of FmHA will help address this outstanding rural need in Washington state.

WEST VIRGINIA

The obstacles to resolving West Virginia's rural water and sewer needs illustrate the kinds of challenges faced by rural poor communities nationwide. According to state health and environmental staff, an undocumented but nevertheless significant number of West Virginia residents lack safe drinking water and sanitary waste disposal systems and need new water supply and/or sewage treatment facilities. Many other rural poor West Virginians are served by inadequate community facilities. According to the 1988 EPA Needs Survey, nearly three out of every four currently operating wastewater treatment facilities fail to meet federal standards.

State environmental and health agency files do not document the full extent of facility noncompliance or facility need in West Virginia. Cutbacks in state programs and federal outlays have reduced the state's ability to monitor facility compliance and review operator reports, let alone implement and enforce new environmental standards.

West Virginia is not providing supplemental state funding for water or sewer projects. The state legislature did not appropriate the 20-percent state match required to obtain the federal capitalization grant to seed the state revolving fund for sewage treatment projects. As a result, the state must borrow to meet match requirements and will have to pass the cost of borrowing on to SRF recipients.

State health and environmental staff assert that without supplemental grants and low-interest loans, many if not most of West Virginia's rural communities will be unable to improve water quality or protect public health. High per-capita costs — a function of having few customers per system — restrict rural communities' ability to finance treatment facilities regardless of median income. Thirty percent of the state's community water supply systems serve fewer than 200 customers apiece and thus cannot hope to achieve economies of scale or to spread costs effectively. And project costs, including construction and transportation, are driven up by natural factors such as shallow soils, steep slopes, poor drainage, and the need to protect

high-quality streams. West Virginia's Department of Natural Resources (DNR) says that costs for sewer projects are among the highest in the nation.

Nearly half of the state's 1.8-million population have incomes below the national poverty level, and income levels are continuing to drop, largely because of persistently high unemployment in recent years. Income surveys conducted for FmHA funding applications show that household incomes have fallen since the 1980 census. Outmigration, particularly among West Virginia's coal communities, has had the effect of further jeopardizing the creditworthiness of these communities and reducing their ability to spread costs. Some coal-mining areas have lost half their population since 1980.

West Virginia is the only state completely located within the Appalachian region as defined by the Appalachian Regional Commission (ARC), and 15 of the state's 55 counties qualify under the ARC's distressed counties program, as measured by low per-capita income, long-term unemployment, and percent of population below poverty level.

Many water and sewer utilities do not set user rates high enough to provide them with an adequate cash flow to meet their operation, maintenance, and debt service requirements. Sewer rates range from \$1.00 per 4,500 gallons to \$27.23 per 4,500 gallons, and water rates are within a similar range. West Virginia Public Service Commission officials say that low rates persist mainly because so few customers can afford to pay more. The additional costs of complying with new federal environmental standards will place even more of a burden on the state's already overburdened utilities.

Regulators report that most rural water and sewer systems lack management and operational capability. Few employ full-time operators; many use volunteers. They put off needed system maintenance and replacement and rarely collect adequate revenues to cover routine operational expenses. More than a third of the state's community water systems are privately owned, and only within the past two years has the West Virginia Public Service Commission allowed these systems to maintain capital reserve funds. Monitoring violations, an indication of inconsistent operation and management, account for the majority of small system drinking water noncompliance problems in West Virginia.

Rural Water and Sewer Needs

Small, independent water systems have proliferated in rural West Virginia, creating a management and oversight burden for state agencies and resources. With limited staff, the state Department of Environmental Health cannot adequately monitor and enforce federal drinking water requirements

while also handling permits for new and existing water systems, training operators, and inspecting on-site septic systems.

There are approximately 680 community drinking water systems in the state. Water quality is generally poor, and in some communities people routinely haul and boil water for drinking. Few of the small water systems in West Virginia meet current federal drinking water treatment standards, and state officials agree that increased monitoring would reveal an even higher incidence of noncompliance among water systems statewide.

According to the 1988 EPA Needs Survey, West Virginia's current and future wastewater treatment needs total \$2.1 billion. The West Virginia Department of Natural Resources estimates that the state has an additional \$266 million in undocumented needs, primarily for new sewage treatment facilities and collector sewers in unsewered communities. DNR staff also report that the state's wastewater facility needs exceed national estimates. They note that non-point source control is a significant problem in rural West Virginia but is not tracked in the national Needs Survey.

About half of the state's population is currently served by sewage treatment facilities. Nearly three-quarters of the facilities do not meet Clean Water Act standards. Seventy-five facilities are in violation of federal discharge permit standards and did not meet the July 1988 National Municipal Policy (NMP) compliance deadline. Over \$100 million is needed to bring these NMP facilities into compliance.

In areas without sewage treatment facilities, straight-pipe discharging of untreated waste is commonplace. The state's steep terrain and generally poor soil permeability mean that in many places on-site septic systems are either not feasible or are failure-prone. New collector sewers account for 80 percent of West Virginia's sewer facility needs.

Funding Programs

More than \$1 billion in federal and state loans and grants have been obligated for West Virginia water and sewer projects since 1972. FmHA, ARC and HUD Small Cities Block Grants (CDBG) have obligated \$195.93 million for rural water and sewer projects since 1972. Until 1988, the majority of FmHA, ARC and CDBG funds were awarded for water projects. EPA Construction Grants and West Virginia Water Development Authority (WDA) bonds provided the majority of sewer project financing. Communities also obtained grants and low-interest loans for the local share of EPA Construction Grant-funded sewer projects.

Few West Virginia communities can finance water and sewer facility projects without substantial grants and low-interest loans. Water and sewer projects are typically financed from a combination of funding sources, and demand for grants is consistently high. During the EPA Construction Grants program, numerous rural and rural poor communities were able to develop facilities because they were able to obtain 75-percent grants and a 10-percent grant bonus for use of innovative/ alternative (I/A) technologies. EPA and DNR staff assert that the decline in federal grants share greatly reduced the ability of West Virginia's poor communities to develop affordable wastewater treatment facilities.

EPA Construction Grants and WDA loans provided the majority of financing for sewer projects. From 1974 to 1989, WDA obligated \$142.85 million for sewer projects and \$13.5 million for water projects in loans and hardship grants. WDA awarded hardship grants from a \$40-million state appropriation; only communities charging at least \$20 per month in water or sewer user fees were eligible. EPA Construction Grants awards totalling \$665 million were granted for 104 facility projects between 1972 and 1988.

In 1989, a total of \$3.5 million was available statewide in the CDBG program. Application requests totalling \$70 million were submitted; grants were awarded to one in 10 applicants. In 1990, \$7 million was available in the CDBG program. The Region 1 Planning and Development District, which represents the state's six most economically distressed counties, submitted grant requests totalling \$10 million.

The Appalachian Regional Commission offers grants covering 80 percent of project costs to very low-income communities in the Economically Distressed Area program. The ARC Area Development Program provides 50-percent grants for projects serving communities in the Appalachian region. In 1990, 78 applications representing \$26 million in water, sewer and economic development projects were submitted to the ARC — which had less than \$10 million to spend.

ARC works with the CDBG program to provide affordable financing to very poor West Virginia communities for water and sewer projects. Between 1982 and 1989, ARC and CDBG water project grants totalled \$59.4 million (\$7.4 million per year average) and \$33.5 million for sewer projects (\$4.2 million per year average).

When the federal EPA Construction Grants share declined from 75 to 55 percent following the 1984 Clean Water Act amendments, grant programs such as CDBG and ARC received increasing numbers of sewer applications. CDBG and ARC staff recognize that without supplemental grants rural poor applicants will not be able to develop needed sewage treatment facilities.

Staff anticipate that demand and competition for grants and low-interest loans will escalate with the transition to state revolving funds. In 1990, for example, the number of CDBG sewer grants exceeded the number of water project awards for the first time.

ARC and CDBG staff are concerned about how the termination of the Construction Grants program will affect their ability to meet West Virginia's water and sewer needs. Historically, the two programs have played a critical role in addressing the drinking water needs of rural poor communities. Given the current level of noncompliance among the state's drinking water systems and the increased quality standards required by the 1986 Safe Drinking Water Act amendments, demand and need for water system financing shows no signs of abating. ARC and CDBG staff are not reluctant to finance sewer projects. However, they are not prepared to replace EPA Construction Grants as a source of funding solely for sewer projects.

Farmers Home Administration Water/Sewer Program

West Virginia FmHA has made a major contribution to rural poor wastewater facility project financing in recent years. There is consistently high demand for FmHA loans and grants, and the state program has aggressively processed funding requests in order to ensure that additional funds are obtained from the national pool.

FmHA funded 63 water and sewer projects in West Virginia between 1984 and 1988. FmHA consistently receives applications exceeding its annual allocation. In 1990, the backlog of water and sewer applications totalled more than 300 percent of available funds. For the past nine years, West Virginia FmHA has obligated loans and grants from the national pool in addition to using up its entire annual state allocation. In FY 1988, more than 25 percent of the state's total obligations were obtained from the national pool.

The majority of FmHA loans and grants have been directed to water projects. In 1988, for example, FmHA allocated \$11.2 million for water projects and only \$1.6 million for sewer projects. FmHA asserts that the dominance of water projects can be attributed to the fact that FmHA grants have been one of the few grant sources available for water projects, while comparatively substantial grant funds have been available for sewer projects under the EPA Construction Grants and WDA hardship grants programs.

FmHA's portfolio has only recently included an increasing number of sewer projects. FmHA staff, like their counterparts at ARC and CDBG, attribute the increase to changes in the EPA Construction Grants program. Enforcement of federal sewage treatment standards is also contributing to the

level of FmHA-funded sewer projects. Sewer project applications address a range of facility needs, including new facility development and rehabilitation.

FmHA explains that the increase in sewer project applications also reflects trends in project financing. Since numerous communities have received financing for water projects, they are now generating a substantial volume of wastewater and require municipal facilities. In fact, without a public water system, the need for a public sewer system may not be recognized or addressed.

From FmHA's viewpoint, funding water projects generates a better loan portfolio: more loans can be issued that benefit a greater number of households at a lower cost than is generally true of sewer projects. Because of the lower overall cost, water project debt service tends to be more affordable than sewer project repayments. West Virginia FmHA has provided funding for new systems, system replacement, rehabilitation of existing systems and line extensions and treatment facilities. The FmHA portfolio reflects the wide range of facility needs in the state, from development to rehabilitation.

Most FmHA loans and grants go to systems serving fewer than 500 households. With the state nonmetropolitan median household income (SNMHI) only \$704 above the 1990 national poverty level, many West Virginia applicants qualify for low-interest loans and grants. Since 1985, 47 percent of all FmHA loans were obligated to communities with incomes below 80 percent of the SNMHI. Between 1985-1988, the average income of communities in West Virginia that received FmHA assistance was \$11,940. In 1990, FmHA issued only one loan to a community with an income above the SNMHI.

Given the limited amount of FmHA grant funds and the high percentage of applicants that qualify for grants, West Virginia FmHA often includes a provision in its letter of conditions requiring applicants to obtain other funds, primarily CDBG grants. This condition reduces the amount of funds requested from FmHA and allows FmHA to distribute limited grant dollars to a larger number of projects. As a rule, FmHA does not provide 75-percent grants to eligible applicants, because the state's entire annual grant allocation could be consumed by as few as three projects.

As noted, single-source funding of water and sewer projects is the exception in West Virginia. According to FmHA, the need for grant monies is increasing because high per-household project costs are prevalent but economic conditions are deteriorating in the state. Most applicants are eligible for other state and federal grants, and FmHA estimates that at least 60 percent of all water and sewer projects obtain funds from other sources.

In 1989, for example, FmHA dollars leveraged over 150 percent of funds obligated.

FmHA awarded grants to 70 percent of the communities receiving loans at 5-percent interest and to 27 percent of applicants receiving loans at the intermediate rate between 1985 and 1988. Grants average about \$400,000 per project, or about \$2,000 per household. FmHA's portfolio contains only three delinquent loans, one in a community whose population has declined from 212 to 137. Although delinquency rates are currently low, FmHA anticipates that continued high unemployment in the state may make it more difficult for many rural communities to develop and sustain financially viable projects, and the agency reports that it is carefully evaluating applicants' financial capabilities and economic conditions.

Wastewater Facility Funding

EPA Construction Grants

During the EPA Construction Grants program, sewage treatment facilities were constructed in 104 West Virginia communities. But many West Virginia communities lack adequate sewage treatment and were unable to develop facilities during the Construction Grants program. Some grant recipients were able to develop affordable projects by taking advantage of the 10-percent innovative/alternative (I/A) bonus and by obtaining grants and low-interest loans from CDBG, ARC and WDA to cover local-share requirements. Eighty-five to 95 percent of WDA loans were used for the local share of grant-funded projects. Loans were available at below-market rate interest for 38-year terms. Many grant recipients also received hardship grants, offered through WDA, that reduced household water and/or sewer costs to \$20 per month.

According to DNR, 33 wastewater treatment projects totalling \$125 million remain on the state priority list because they were unable to proceed to construction without grants to finance local-share costs. In some of the state's poorest communities, steep slopes and shallow bedrock restricted the use of I/A technologies. This increased local-share costs because new collector sewers — a component of conventional sewage treatment systems — were a restricted cost under the Construction Grants program.

Other West Virginia sewer projects were not completed during the Construction Grants program because of cost overruns. In 1989, for example, bids for construction projects exceeded planning estimates by an average of 40 percent. States have the flexibility to provide Construction Grants funds for cost overruns. DNR has limited such grant increases to 10 percent,

requiring applicants to obtain funds from other sources to cover additional cost overruns. In 1990, when ARC had only \$1.2 million in grants available, more than \$16.1 million was requested in ARC grants to cover sewer project cost overruns.

State Revolving Loan Funds

The 1987 Clean Water Act amendments established conditions for establishing state revolving funds, including restricting eligible activities and loan terms. States cannot obtain the federal capitalization grants needed to seed the SRF without providing a 20-percent match. Loan recipients must be identified and all SRF funds obligated within a year after receiving each quarterly capitalization grant.

Prior to lending funds for other projects, states must first issue loans to or otherwise resolve projects that have not yet complied with secondary treatment standards and are violating National Municipal Policy (NMP). States are not required to issue loans to NMP projects if funds are obtained from another source for the project or negotiations are underway to develop an enforcement schedule.

Not one of West Virginia's NMP projects is expected to be able to finance construction projects with SRF loans, because estimated user charges would be unaffordable for residents served by the facilities. State and federal funding agency staff in West Virginia agree that 100-percent project loans are not feasible, and supplemental grants are necessary to reduce the amount of funds borrowed and thereby reduce annual user charges. To date, more than half of the state's 75 NMPs have obtained commitments from other funding sources, including FmHA, ARC and CDBG.

DNR contends that the SRF, as structured by the Clean Water Act amendments, is not a viable sewage treatment funding program for states made up primarily of small, rural low-income communities. There is no doubt that most West Virginia communities are financially limited — if not strapped — and state revenues cannot currently provide the subsidies needed to create affordable projects.

The West Virginia legislature did not approve an interest-free appropriation for the required state match in 1990. DNR evaluated the impact of borrowing to raise the 20-percent match and determined that this would necessitate a 5-percent interest rate for SRF loans, which would reduce debt service affordability for many of West Virginia's poor communities.

Rather than borrowing, DNR is currently considering charging 17-percent loan origination fees to loan recipients and using such fees to meet

state match requirements. SRF loans would then be offered at zero-percent interest. The state proposes to use unallocated Construction Grants for planning and design advance allowances to help communities meet preliminary loan requirements.

Communities may derive funds for loan origination fees from conventional lenders, CDBG grants, or WDA loans, currently offered at 7.75-percent interest over a 38-year term. With WDA loans, the effective interest rate on combined SRF and WDA loans is estimated to be less than 4 percent. This approach may result in reasonable debt service for many West Virginia communities, depending on overall project costs and the need for collectors or other project activities with restricted eligibility under the Clean Water Act.

The loan repayment stream to the SRF will be small, with potential loans averaging \$1 to 2 million, each at zero-percent interest, and this will restrict the volume of future loans. As a result, DNR staff expect the SRF to have a limited impact on future facility financing needs. DNR notes that states with large municipal borrowers are able to generate a more substantial repayment stream by issuing larger loans at higher interest rates.

DNR staff have continued to urge the state legislature to appropriate funds to meet state-match requirements. An interest-free match would reduce the financial burden on rural poor communities and improve the long-term viability of the SRF. DNR staff point out, however, that other federal restrictions will reduce project affordability for many rural West Virginia communities, including:

- *Inability to commingle Construction Grants and SRF loans for the same project.* There are 46 grant-funded projects in West Virginia — representing \$97.2 million in Construction Grant awards — that cannot proceed to construction without an additional \$26 million to cover cost overruns. SRF loans to finance cost overruns would result in facility construction at affordable user rates.

- *Twenty-year maximum loan term.* Because many communities could not afford local-share costs during the grants program, it is unlikely that loans, even at zero-percent interest, will be affordable to West Virginia's rural poor communities. DNR compared user rates for current Construction Grants projects with 45-percent local share obtained from WDA loans at 7.5 percent over 38 years to 2-percent SRF loans over a 20-year term to determine the impact of loan term on affordability. On average, DNR estimated that user rates will be 77 percent higher — \$40 per month average — with SRF loans than with 55-percent federal grants.

■ *First use requirements.* SRF loans must first be issued to NMP projects before other facilities may receive loans. According to DNR, 53 of West Virginia's 75 NMP projects are now in compliance or have received a funding commitment. However, of the 22 remaining projects, 15 have been unable to afford 45-percent local-share costs and will be placed under Consent Decrees.

■ *State allotment formula.* Because the state allotment formula benefits states with larger municipalities and major metropolitan areas, West Virginia DNR contends that the state faces a significant deficit in its SRF. Including the state match, the fund will total an estimated \$132 million through 1994, when the federal capitalization period is terminated. This leaves a deficit of \$847 million in identified current sewer facility needs. These figures do not include ineligible project costs and new eligibilities under the SRF.

■ *Restricted project eligibility.* Collectors represent 80 percent of West Virginia's sewer facility needs. However, only 20 percent of SRF funds may be used for new collector sewers, major rehabilitation, and replacement. Land acquisition is also an ineligible cost component, but is needed in many new facility development projects.

■ *Restricted SRF administration costs.* States may use up to four percent of federal capitalization funds for SRF administration. Many states, including West Virginia, are charging fees to cover administrative costs. DNR intends to charge 4-percent fees for loan processing.

Summary

West Virginia provides a striking illustration of the gap that can develop between federal regulatory funding priorities and federal/state efforts to address rural water and sewer needs. The sheer number of small, rural and low-income water and sewer systems in the state creates a management burden for state regulators. The state lacks the capacity to adequately monitor system compliance and, as a result, has little documentation of needs statewide. Without a clear picture of current rates of noncompliance, analysts cannot evaluate the impact of changing regulations and funding program transitions on West Virginia's rural water and sewer systems. And because these needs are not documented, they may not be adequately considered when new or modified policies are being developed.

Thanks to the EPA Needs Survey, there is certainly more detailed information available on West Virginia's wastewater facility needs than on the state's drinking water needs. But West Virginia regulators agree that the Needs Survey does not provide an adequate picture of the need for new sewage collection and treatment facilities statewide. Moreover, regulators are

distressed that the state funding allocation formula — first for Construction Grants and now for SRFs — does not reflect the concentration of need in the state. Rather, the allocation formula rewards states with individually higher-cost urban projects regardless of the extent of lower-cost projects in rural communities.

In spite of the lack of needs documentation, trends in water and sewer financing in West Virginia provide a strong indication of the state's needs. Historically, water projects have dominated all but the Construction Grants-related programs. Funding agency staff agree that rural water system needs in the state continue to require assistance and funding to ensure that residents are served by safe and reliable water supplies. As with sewer systems, the sheer number of small water systems in West Virginia calls for a commensurate level of oversight and funding assistance. Yet the state has neither the human nor the financial resources to meet drinking water compliance or construction needs.

The termination of the Construction Grants program has had repercussions in all the other funding programs operating in the state. Requests for sewer project funding now dominate all funding lists and greatly exceed the limited resources available. Not one funding program is prepared to replace Construction Grants by becoming a source of funding solely for sewer projects. Funding staff seek to set their own priorities. Providing funding to meet community development needs and address public health problems is as much a priority, according to funding staff, as helping communities to meet Clean Water Act standards. FmHA staff, for example, state that they will continue to provide financing for both water and sewer projects, based on community need, income, and ability to leverage other project funding.

SRF staff are no less frustrated by the termination of the Construction Grants program. Leaving aside the problem of the state-match requirement, SRF staff assert that the loan program will not be an appropriate or viable long-term financing mechanism in a state comprised of low-income residents, many of whom are not yet served by municipal wastewater facilities. SRF staff recommend that the Construction Grants program be continued to finance basic infrastructure in municipalities, providing rural, low-income residents the same level of subsidy that urban areas received during the Construction Grants program.

Since the 1987 Clean Water Act amendments, West Virginia SRF staff have contacted policymakers and regulators, requesting policy changes that would better help rural poor states to address their wastewater facility financing needs. Staff assert that extending the loan term to 40 years would increase project affordability. Staff request that additional Construction

Grants financing be provided to projects that have not yet completed projects with initial Construction Grants funding. Perhaps most important, West Virginia SRF staff urge that the state allotment formula be amended to reflect the type and concentration of need in rural states.

The poignant problems of West Virginia underscore the importance of some key points highlighted throughout this report. First and foremost, insufficient hard data is available on the nature, extent, and severity of water and sewer needs among rural poor communities. Regulators and funding staff agree that water and sewer needs should be defined not merely in terms of regulatory compliance but also in terms of systems' financial and management capability as well. West Virginia regulators agree that the lack of such needs data has hampered their efforts to address rural wastewater facility needs and to advocate necessary changes in the Clean Water Act program.

Data provided by West Virginia regulators show that poor facility management is often the main cause of noncompliance. Regulators are considering ways to consolidate small water and sewer systems to help them share costs and to finance required improvements. As competition for limited funding increases, the consolidation strategy may be the only way that the facility needs identified by state regulators can be addressed.

Finally, West Virginia regulators and funding staff agree that financing programs should be structured to provide affordable financing for systems serving low-income residents and a small customer base. Data on the high demand for grants in West Virginia and the consistently high use of FmHA loans and grants show that funding terms based on community size and ability-to-pay do enable rural low-income communities to develop affordable projects. The SRF program, as structured in the Clean Water Act, does not meet the state's needs because it does not enable rural poor communities to obtain affordable project financing.

Should the West Virginia SRF be criticized for not targeting rural low-income needs? In a state with no major urban centers, the targeting issue may be moot. The state has had no choice but to structure the SRF so that some communities can finance projects with SRF loans. At issue is whether, by offering zero-percent loans, the state is meeting the federal requirement of protecting the long-term viability of the SRF as a permanent financing source. If the state can neither meet this requirement nor provide affordable SRF loans to communities with severe needs, perhaps West Virginia's dilemma will compel policymakers to address the apparent mismatch between a revolving loan fund — at least as presently structured and constrained — and the facility financing needs of poor rural communities.

STATE REVOLVING FUND TARGETING MATRIX

State	Interest Rate Subsidy			Supplemental State Funds			SRF Restriction	
	Ability to pay	Financial Hardship	Other	Small Committees	Low-Income	Planning & Design	Project Amount	Share of SRF
Alabama								
Alaska								•
Arizona			•					
Arkansas				•	•	•		
California								
Colorado				•				
Connecticut								
Delaware	•							•
Florida						•	•	
Georgia				•				
Hawaii						•	•	
Idaho								
Illinois			• Prop.					
Indiana		• Prop.		•	•		•	

State	Interest Rate Subsidy			Supplemental State Funds				SRF Restriction	
	Ability to pay	Financial Hardship	Other	Small Communities	Low-Income	Planning & Design	Project Amount	Share of SRF	
New Hampshire									
New Jersey							•		
New Mexico		•							
New York	•		•				•		
North Carolina				•	•				
North Dakota								•	
Ohio		•							
Oklahoma								•	
Oregon									
Pennsylvania	•	•		•	•		•		
Rhode Island							•		
South Carolina		•							
South Dakota									
Tennessee	•			•	•				

STATE REVOLVING FUND TARGETING MATRIX

State	Set-Aside		Separate Category		Priority Points		
	Small Community	Hardship Areas	Population Size	Facility Type	Percent of Low-Income	Small Population	Financial Need
Alabama							
Alaska							
Arizona							
Arkansas							
California							
Colorado	•						
Connecticut							
Delaware							
Florida	•						
Georgia							
Hawaii							
Idaho				•			
Illinois							•
Indiana							•

State	Set-Aside		Separate Category			Priority Points		
	Small Community	Hardship Areas	Population Size	Facility Type	Percent of Low-Income	Small Population	Financial Need	
Iowa								
Kansas	•			•				
Kentucky	•							
Louisiana								
Maine								
Maryland			•					
Massachusetts								
Michigan								
Minnesota								
Mississippi					•			
Missouri				•				
Montana								
Nebraska					•			
Nevada								

State	Set-Aside		Separate Category		Priority Points		
	Small Community	Hardship Areas	Population Size	Facility Type	Percent of Low-Income	Small Population	Financial Need
New Hampshire							
New Jersey				•			
New Mexico							
New York	•				•		
North Carolina	•						•
North Dakota							
Ohio				•	•		
Oklahoma							
Oregon	•						
Pennsylvania							
Rhode Island							
South Carolina				•		•	
South Dakota							
Tennessee							

State	Set-Aside		Separate Category			Priority Points		
	Small Community	Hardship Areas	Population Size	Facility Type	Percent of Low-Income	Small Population	Financial Need	
Texas	•	•						
Utah								
Vermont								
Virginia					•	•		
Washington				•			•	
West Virginia								
Wisconsin				•				
Wyoming								

APPENDIX C
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INTEREST RATES OF STATE REVOLVING FUNDS

<u>STATE</u>	<u>INTEREST RATE</u>	<u>STRUCTURE</u>
Alabama	5%	Fixed.
Alaska	4-5% average	Fixed at 66% of municipal bond rate.
Arkansas	4%	Fixed.
Arizona	5%	Fixed.
California	3.5-4% average	Fixed based on 1/2 of state General Obligation (GO) Bond rate.
Colorado	4-5% 1.9% or more	Fixed based on market rate. Variable for small systems based on ability-to-pay and amount of "loan origination fee" paid in advance.
Connecticut	2%	Fixed.
Delaware	2-6%	(Proposed) Variable, based on ability-to-pay, length of loan term. Rate will increase after first 5 years of loan term.
Florida	3.92%-4.18% Avg.	Fixed based on bond market rate: 3% below bond market rate.
Georgia	2% (FY 90) 4% (FY 91)	Fixed.
Hawaii	3.5%	Fixed, based on 1/2 of state GO bond rate.
Idaho	4%	Fixed.
Illinois	3.7% 2.5%	Fixed, based on market rate. Fixed for compliance projects.
Indiana		(Proposed) Fixed rate 1 to 3% below market rate. Hardship rate for small poverty level communities of 0% for first 3 years, 2% for remainder of loan term.
Iowa	5.02% (FY 89) 4.87% (FY 90)	Fixed based on bond market rate.

Kansas	4.2%-4.5%	Fixed based on market rate.
Kentucky	2.2% or 4.2%	Rate structure based on median household income (MHI).
Louisiana	5.5%	Fixed.
Maryland	4.894% 3.7% (most recent bond rate)	Fixed. Two rates offered based on MHI and market rate.
Maine	5%	Fixed based on market; 2 points below rate obtained by the Maine Municipal Bond Bank.
Massachusetts		
Michigan	2%	Fixed.
Minnesota	2/43%-5/38%	Variable based on population size; MHI; % of population at poverty level; ratio of user charges to MHI.
Mississippi	3%	Fixed.
Missouri	3.5%-4.5%	(Proposed) Fixed at one-half market rate.
Montana		(Proposed) Fixed, based on state bond rate and 1% loss reserve fee.
Nebraska	3.5% <u>Minimum</u>	Variable based on MHI in relation to state non-metro MHI. Incentives for short-term loans as low as 2.5 points below market.
Nevada		Proposed fixed rate based on market rate.
New Hampshire		Rate is based on market rate and changes during loan term.
New Jersey	3.5%-4% Average	Fixed at approximately 50% of market rate.
New Mexico	5% 0%	Fixed. Hardship rate based on MHI and user rates.

New York	0% to 2/3 mkt.	Variable based on per capita income and financial capability: 0 of market rate; 1/3 of market rate; 2/3 of market rate.
North Carolina		Fixed annually at lesser of 4% or one-half of market rate.
North Dakota	3.5%	(Proposed) fixed rate.
Ohio	5% 2%	Fixed for populations greater than 10,000. Fixed for communities with high economic need, under 10,000 population.
Oklahoma	4.75%	Fixed based on market rate.
Oregon	3% 0%	Fixed for 20 year loan term. Fixed for 5 year loan term.
Pennsylvania	1% minimum 2% average	Variable rate based on socio-economic factors.
Rhode Island		(Proposed) Fixed at 4% below market rate.
South Carolina	4.5% 2%	Fixed. Standard rate, 2 points below market rate. Hardship rate based on MHI.
South Dakota	3%	Fixed.
Tennessee		Variable based on "ability-to-pay" index.
Texas		Variable - set by Board, based on market rate and project need. Rate can be set as low as 0%. Hardship rate of 2%.
Utah	3% average	Variable based on ability-to-repay and MHI.
Vermont		Fixed based on interest rate of bond sold by state; between 0-80% of state rate, 0% planning advance loans. Reduced rate for "job development zones."
Virginia		Variable based on ratio of user charges to MHI and ability-to-repay.

Washington	5% 4% 0%	For 15 to 20 year loan terms. For 6 to 14 year loan terms. For 1 to 5 year loan terms. Rate may be reduced if user charge greater than 1.5% MHI.
West Virginia		Variable rate based on financial capability.
Wisconsin	2.5% 55%, 70%, 100% of market rate.	Fixed rate for projects that were not completed in Construction Grants. Based on type of project.
Wyoming	0%	Proposed.

* Information obtained during Summer 1990 SRF Survey.

APPENDIX D
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STATE REVOLVING FUND SURVEY

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STATE REVOLVING FUND SURVEY

Dear Colleague:

During the past few years, there have been significant management and financial changes in wastewater policy. It is a crucial time to examine those changes and their implications. In recognition of the importance of this situation, the Ford Foundation and Aspen Institute have commissioned a survey of State Revolving Funds (SRF). The survey will specifically address the needs of small systems and the affordability of projects serving low income users. Findings from the survey will provide a basis for national policy recommendations on rural infrastructure financing and assistance programs.

The survey is being sent to 50 SRF administrators. Enclosed you will find a short mail questionnaire. To expedite gathering the information required for this survey, we ask you to include several documents for which a checklist is provided. Following receipt of this mail questionnaire and the attachments, we will conduct a telephone interview to discuss various aspects of your state loan fund. We welcome your using the telephone interview to assist us with preparing recommendations.

We will provide you with a summary report on your state program. In addition, we plan to send you a copy of the national report which will include findings and recommendations on rural water and sewer system policy. Most particularly, the report will address the needs of the rural poor. Several programs will be analyzed, including the FmHA Water/Sewer Loan and Grant Program, Small Cities Community Development Block Grant program, and state bond banks.

For your convenience we have enclosed a mailing label for your use when returning the questionnaire and attachments. We thank you for your cooperation.

Please return the questionnaire and attachments by May 25, 1990.


Laura Paradise
Policy Associate

QUESTIONS? CONTACT LAURA PARADISE AT (202) 393-5225

Rapoza Associates is a consulting firm based in Washington, D.C. that provides research and legislative support on rural development policy. This survey is part of a national project that will produce recommendations on funding programs and collaboration among organizations that share interests in environmental infrastructure issues.

State: _____	
Name of Organization Administering SRF: _____	
Address: _____	
City: _____	Zip: _____
Contact (name): _____	Phone () _____
Title: _____	

STATE REVOLVING FUND SURVEY

State Revolving Fund Program Structure

1. When setting up your SRF, what two or three information sources (e.g. reports, data sources) were used to determine state wastewater facility needs? Please be specific.
 - a. _____
 - b. _____
 - c. _____

2. Did you conduct a needs survey in preparation for establishing your SRF program?
 Yes No

3. Fill in your state's estimated wastewater facility needs costs by categories. (note "NA" for items that are not applicable.):

a. small systems	\$	
b. systems serving rural areas	\$	
c. systems serving urban areas	\$	
d. secondary treatment	\$	
e. replacement/rehabilitation	\$	
f. new collector sewers	\$	
g. new interceptor sewers	\$	
h. combined sewer overflows	\$	
i. infiltration/inflow	\$	
j. other _____	\$	

4. Following from #3, your state's wastewater facility costs are based on FY 19 ____.

5. Do these needs figures include adjustments for inflation? Yes No

6. Check whether one or more of the following is (are) used to target funds to small systems.

	Yes	No
a. small system set-aside	<input type="checkbox"/>	<input type="checkbox"/>
b. separate evaluation of large and small systems	<input type="checkbox"/>	<input type="checkbox"/>
c. increased ranking score for small systems	<input type="checkbox"/>	<input type="checkbox"/>
d. other _____		

7. If SRF contains a small system set-aside for most recent FY 19 ____ (fill in), your level of funding available is \$ _____.

8. Is regionalization of small systems encouraged in your state ranking system?
 Yes No

Small Systems

9. Provide definition of small system used in your SRF program.

10. Check which types of compliance problems are prevalent among small systems:

	Yes	No
a. inadequate level of treatment	<input type="checkbox"/>	<input type="checkbox"/>
b. failing on-site septic systems	<input type="checkbox"/>	<input type="checkbox"/>
c. infiltration/inflow	<input type="checkbox"/>	<input type="checkbox"/>
d. poor operation and maintenance	<input type="checkbox"/>	<input type="checkbox"/>
e. design errors	<input type="checkbox"/>	<input type="checkbox"/>
f. sludge disposal	<input type="checkbox"/>	<input type="checkbox"/>
g. other _____		

11. Are compliance problems more prevalent among small systems serving users with limited financial capability? Yes No

12. Are funds set-aside within the SRF specifically for economically distressed areas?
 Yes No

13. If yes, provide amount of set-aside: FY 19 ____ \$ _____.

14. Check which of the following measures are used to assess project affordability:

	Yes	No
a. user rate per household	<input type="checkbox"/>	<input type="checkbox"/>
b. comparison with similar communities	<input type="checkbox"/>	<input type="checkbox"/>
c. acceptable ratio of user fees to household income	<input type="checkbox"/>	<input type="checkbox"/>
d. other _____		

15. List key information sources used to obtain economic information on project affordability (e.g., U.S. Census Bureau, State League of Cities or Municipal Association survey, university study, other):

a. _____

b. _____

c. _____

16. From #15, please provide the title and year of publications used, if you relied on several reports:

Title	Year
Title	Year
Title	Year

17. Provide definition of low-income and/or economic need used in state SRF program.

18. Are you collecting data on:

	Yes	No
a. current sewer user fees	<input type="checkbox"/>	<input type="checkbox"/>
b. changes in user fees as a result of increased debt	<input type="checkbox"/>	<input type="checkbox"/>

19. If yes, is data publicly available?

20. Which of the following are reviewed to determine financial capability?

	Yes	No
a. annual user fees	<input type="checkbox"/>	<input type="checkbox"/>
b. operation and maintenance costs	<input type="checkbox"/>	<input type="checkbox"/>
c. current indebtedness	<input type="checkbox"/>	<input type="checkbox"/>
d. financial statements	<input type="checkbox"/>	<input type="checkbox"/>
e. capital budget	<input type="checkbox"/>	<input type="checkbox"/>
f. operating budget	<input type="checkbox"/>	<input type="checkbox"/>
g. other _____	<input type="checkbox"/>	<input type="checkbox"/>

21. List primary sources used to evaluate creditworthiness:

a. _____

b. _____

c. _____

22. Do you anticipate that there will be small systems that cannot afford financing through your SRF program? Yes No

23. a. Is loan interest rate fixed or variable ? (check appropriate)

b. If fixed, provide rate: _____%

c. If variable, range of interest rates is _____% to _____%.

24. Variable interest rate is based on:

	Yes	No
a. ability to repay	<input type="checkbox"/>	<input type="checkbox"/>
b. user income	<input type="checkbox"/>	<input type="checkbox"/>
c. economic distress factor	<input type="checkbox"/>	<input type="checkbox"/>
d. market rate	<input type="checkbox"/>	<input type="checkbox"/>
e. other _____	<input type="checkbox"/>	<input type="checkbox"/>

25. Is interest charged during the construction period? Yes No

26. If yes, is this interest rate higher, lower or the same as the rate charged following construction? Higher Lower Same

27. Does the SRF program have any of the following distributional requirements:

- | | Yes | No |
|---|--------------------------|--------------------------|
| a. portfolio interest rate spread | <input type="checkbox"/> | <input type="checkbox"/> |
| b. municipal bond rating spread | <input type="checkbox"/> | <input type="checkbox"/> |
| c. spread among metro, small and regional systems | <input type="checkbox"/> | <input type="checkbox"/> |
| d. other _____ | | |

28. Are SRF funds being used for non-loan forms of assistance, such as:

- | | Yes | No |
|----------------------------------|--------------------------|--------------------------|
| a. refinancing | <input type="checkbox"/> | <input type="checkbox"/> |
| b. loan guarantees and insurance | <input type="checkbox"/> | <input type="checkbox"/> |
| c. pooling local debt | <input type="checkbox"/> | <input type="checkbox"/> |
| d. arranging private investment | <input type="checkbox"/> | <input type="checkbox"/> |
| e. other _____ | | |

29. a. Provide amount of annual funding (on average) available between 1982-1988 for wastewater funding under Construction Grants program: \$ _____.

b. How does this amount compare to the amount of funding available in the SRF program (including state match)? Higher Lower Same

c. Total annual SRF program amount: \$ _____.

30. Is there a backlog of applications for SRF funding? Yes No

31. If yes, number of applications: _____, representing a total of \$ _____ need.

32. In your opinion, what is the single most significant obstacle impeding small systems' ability to finance facility improvements? Please check one.

- a. lack of planning funds
- b. lack of interest rate subsidy
- c. lack of grant
- d. pledge requirement
- e. poor creditworthiness
- f. excessive project costs
- g. other _____

33. Are you currently charging fees to cover loan closing or processing costs? Yes No

34. If not, do you plan to charge such fees? Yes No

Other Programs Supporting SRF Activities

35. Does your state operate a municipal bond bank? Yes No

36. If yes, are small municipalities the bond bank's primary beneficiaries? Yes No

37. Are bond funds used primarily for:

- | | | |
|------------------------------|--------------------------|--------------------------|
| | Yes | No |
| a. water systems | <input type="checkbox"/> | <input type="checkbox"/> |
| b. sewer systems | <input type="checkbox"/> | <input type="checkbox"/> |
| c. other project type: _____ | | |

38. Is data being maintained on source, amount, and type (loan/grant/rate/terms) of funds obtained on a project-by-project basis? Yes No

39. If yes, name of organization maintaining this data:

Organization	Telephone
--------------	-----------

40. List organizations and contact persons providing the following services in conjunction with SRF program:

Service	Organization	Contact Person
Technical Assistance		
Education & Training		
Financing Assistance		

**COULD YOU PLEASE ENCLOSE THE FOLLOWING DOCUMENTS?
CHECKLIST**

	Enclosed	Not Available
Intended Use Plan	<input type="checkbox"/>	<input type="checkbox"/>
SRF Annual Report	<input type="checkbox"/>	<input type="checkbox"/>
Construction Grants Priority List	<input type="checkbox"/>	<input type="checkbox"/>
Construction Grants Priority System	<input type="checkbox"/>	<input type="checkbox"/>
SRF Project Bypass Procedures	<input type="checkbox"/>	<input type="checkbox"/>
SRF Project Ranking Criteria	<input type="checkbox"/>	<input type="checkbox"/>
SRF Review Board Composition	<input type="checkbox"/>	<input type="checkbox"/>
SRF Loan Distribution Criteria	<input type="checkbox"/>	<input type="checkbox"/>
Listing of projects funded in past three years from CG and SRF	<input type="checkbox"/>	<input type="checkbox"/>

Please send documents for the most recent fiscal year. The documents will be used to gather essential information that would be inefficient to request over the telephone or in the mail survey. Please check and return enclosures with the completed survey by May 25, 1990.
Thank you.

APPENDIX E

▼

POOR NONMETROPOLITAN COUNTIES

Alabama (10)

Bullock
Conecuh
Crenshaw
Greene
Hale
Lowndes
Macon
Perry
Sumter
Wilcox

Alaska (6)

Bethel
Kobuk
Nome
Southeast Fairbanks
Wade Hampton
Yukon-Koyukuk

Arizona (1)

Apache

Arkansas (7)

Chicot
Lee
Monroe
Newton
Phillips
Searcy
Stone

California (1)

Lake

Colorado (13)

Alamosa
Baca
Cheyenne
Conejos
Costilla
Crowley
Custer
Delta
Huerfano
Las Animas
Otero
Saguache
Yuma

Florida (6)

Dixie
Franklin

Glades
Holmes
Jefferson
Washington

Georgia (19)

Atkinson
Brooks
Candler
Clay
Early
Fannin
Hancock
Jefferson
Jenkins
Quitman
Randolph
Screven
Stewart
Taliaferro
Tattnall
Townsend
Union
Webster
Wheeler

Hawaii (1)

Kalawao

Idaho (7)

Clark
Custer
Oneida
Owyhee
Payette
Teton
Washington

Illinois (15)

Alexander
Brown
Cathoun
Clay
Franklin
Gallatin
Greene
Hamilton
Hardin
Jackson
Johnson
Pike

Pope
Pulaski
Saline

Indiana (4)

Crawford
Davies
Orange
Switzerland

Iowa (8)

Appanoose
Clarke
Decatur
Lucas
Ringgold
Taylor
Van Buren
Wayne

Kansas (8)

Chautauqua
Crawford
Elk
Jewell
Republic
Smith
Washington
Woodson

Kentucky (22)

Adair
Breathitt
Casey
Clay
Clinton
Cumberland
Jackson
Knox
Lawrence
Lee
Leslie
McCreary
Magoffin
Menifee
Metcalfe
Monroe
Morgan
Owsley
Rockcastle
Russell
Wayne
Wolfe

Louisiana (15)

Avoyelles
Bienville
Caldwell
Catahoula
East Carroll
Evangeline
Franklin
Madison
Morehouse
Red River
Richland
St. Helena
Tensas
West Carroll
Winn

Maine (1)

Washington

Maryland (2)

Garrett
Somerset

Michigan (13)

Alcona
Clare
Crawford
Gogebic
Houghton
Iosco
Iron
Keweenaw
Lake
Montmorency
Ogemaw
Oscada
Roscommon

Minnesota (7)

Aitkin
Cass
Clearwater
Lincoln
Mahnomon
Todd
Wadena

Mississippi (8)

Holmes
Humphreys
Jefferson
Noxubee

Quitman	Logan	Douglas	Washington (2)
Sharkey	Morrill	Faulk	Kittitas
Tallahatchie	Nance	Gregory	Pend Oreille
Tunica	Pawnee	Hamlin	
Missouri (12)	Sherman	McPherson	West Virginia (6)
Carter	Valley	Mellette	Braxton
Dallas	Wheeler	Miner	Calhoun
Douglas	North Carolina (8)	Sanborn	Clay
Hickory	Bertie	Shannon	Doddridge
Oregon	Cherokee	Todd	Gilmer
Ozark	Clay	Zieback	Webster
Pemiscot	Hyde	Tennessee (5)	Wisconsin (10)
Ripley	Madison	Claiborne	Ashland
St. Clair	Northampton	Clay	Bayfield
Shannon	Swain	Fentress	Burnett
Wayne	Warren	Hancock	Florence
Worth	North Dakota (6)	Pickett	Forest
Montana (9)	Emmons	Texas (26)	Iron
Carter	Grant	Delta	Prairie
Garfield	Kidder	Dickens	Rusk
Golden Valley	Logan	Edwards	Sawyer
Musselshell	McIntosh	Falls	Washburn
Petroleum	Rolette	Hall	Wyoming (4)
Phillips	Ohio (7)	Hamilton	Albany
Prairie	Adams	Houston	Big Horn
Sweet Grass	Athens	Kinney	Goshen
Wibaux	Jackson	La Salle	Niobrara
Nevada (1)	Meigs	Leon	
Eureka	Pike	Limestone	
New Mexico (13)	Scioto	McCulloch	
Catron	Vinton	Maverick	
De Baca	Oregon (1)	Menard	
Guadalupe	Wheeler	Motley	
Harding	Oklahoma (14)	Presidio	
Luna	Adair	Real	
Mora	Atoka	Red River	
Rio Arriba	Choctaw	Robertson	
Roosevelt	Coal	Sabine	
San Miguel	Greer	San Augustine	
Sierra	Harmon	San Saba	
Socorro	Haskell	Starr	
Taos	Hughes	Willacy	
Torrance	Johnston	Zapata	
Nebraska (21)	Kiowa	Zavala	
Antelope	Latimer	Utah (5)	
Blaine	McIntosh	Garfield	
Boone	Okfuskee	Kane	
Boyd	Pushmataha	Piute	
Brown	Wheeler	Sanpete	
Franklin	South Carolina (1)	Wayne	
Furnas	Allendale	Virginia (6)	
Garfield	South Dakota (15)	Accomack	
Greeley	Bennett	Brunswick	
Hayes	Buffalo	Charlotte	
Hooker	Campbell	Lee	
Johnson	Corson	Northampton	
Keya Paha		Galax	
Knox			

GLOSSARY

Facility Needs Categories as Defined in the EPA Needs Survey

Wastewater treatment projects that are potentially eligible for federal financial assistance under the Clean Water Act fall within the following categories:

- ① **Secondary Treatment (Category I):** The minimum level of treatment that must be maintained by all treatment facilities, except those facilities granted ocean discharge waivers under Section 301(h) of the Clean Water Act. Treatment levels are specified in terms of the concentration of conventional pollutants in the wastewater being discharged from a facility. Secondary treatment requires an 85-percent reduction in conventional pollutant concentration in the wastewater treated by a facility. Needs reported in this category are necessary to attain secondary treatment. Needs to attain incremental reductions in conventional pollutant concentrations beyond secondary treatment requirements are included in Category II.
- ② **Advanced Treatment (Category II):** A level of treatment more stringent than secondary treatment. Advanced treatment requires greater than 85-percent reduction in conventional pollutants, or a significant reduction in nonconventional pollutants present in the wastewater treated by a facility. Needs reported in this category are necessary to attain incremental reductions in pollutant concentrations beyond basic secondary treatment.
- ③ **Infiltration/Inflow Correction (Category IIIA):** Control of the problem of penetration into a sewer system of water other than wastewater from the ground through such means as defective pipes or manholes (infiltration) or from sources such as drains, storm sewers, and other improper entries into the system (inflow). Included in this category are costs for correction of sewer system infiltration/inflow problems. Costs also are reported for preliminary sewer system analysis and for detailed sewer system evaluation surveys.
- ④ **Replacement/Rehabilitation of Sewers (Category IIIB):** Reinforcement or reconstruction of structurally deteriorating sewers. This category includes cost estimates for rehabilitation of existing sewer systems beyond those for normal maintenance. Costs are reported if the corrective actions are necessary to maintain the structural integrity of the system.
- ⑤ **Collector Sewers (Category IVA):** Pipes used to collect and carry wastewater from an individual source to an interceptor sewer that will convey the wastewater to a treatment facility. This category includes the costs of constructing new collector sewer systems and appurtenances.
- ⑥ **Interceptor Sewers (Category IVB):** Major sewer lines receiving wastewater flows from collector sewers. The interceptor sewer carries wastewater directly to the treatment plant or to another interceptor. This category includes costs for constructing new interceptor sewers and pumping stations necessary for conveying wastewater from collector sewer systems to treatment facilities or to another interceptor.
- ⑦ **Combined Sewer Overflows (CSO) (Category V):** A discharge of a mixture of stormwater and domestic wastes that occurs when the flow capacity of a sewer system is exceeded during a rainstorm. Costs reported are for grant-eligible facilities to prevent or control periodic bypassing of untreated wastes from sewers which convey a combination of wastewater and stormwater to achieve water quality objectives. This category does not include costs for overflow control allocable to flood control or drainage improvement, or for treatment or control of stormwater in separate storm and drainage systems.

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THE RURAL ECONOMIC POLICY PROGRAM (REPP) was created in 1985 as a collaborative program of The Aspen Institute, The Ford Foundation, and the Wye Institute. Working closely with The Ford Foundation's Rural Poverty and Resources Program, the REPP encourages greater attention to rural policy issues through a program of research grants, seminars, and public education. The Program is focused on rural concerns, including agricultural policy, community economic development, resource management, and enhanced livelihoods for the rural poor. REPP is funded by a grant from The Ford Foundation.

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THE CENTER FOR COMMUNITY CHANGE is a national nonprofit organization that provides technical assistance to minority and low-income community-based groups across the country. Founded in 1969 through the efforts of The Ford Foundation, Robert Kennedy and Walter Reuther, CCC's mission is to help grassroots organizations establish self-help community programs and participate more fully in the development of local and national policies that affect low-income people. The Center works with more than 200 minority and low-income groups annually and provides on-site comprehensive assistance to community groups on internal management issues. In addition, it helps groups finance, build and rehabilitate low-income housing; develops shopping centers and small businesses and other economic development projects; and conducts campaigns around issues such as crime and drugs, city services, and voting rights.



ROBERT A. RAPOZA ASSOCIATES is a diversified governmental affairs research and advocacy firm skilled in federal budget and policy analysis. The firm conducts policy analysis and develops legislative strategies on federal housing, community development, rural community facilities, rural affairs, tax policy and other issues. With support from The Aspen Institute and The Ford Foundation, Rapoza Associates has prepared comprehensive analyses of federal rural community development programs. *Through the Revolving Door* is the third in a series of rural policy documents developed by the firm.

*For additional copies of this report,
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THROUGH THE REVOLVING DOOR examines the effectiveness of state and federal financing programs in addressing the wastewater facility needs of rural low-income communities. The report assesses the impact of the transition from EPA Construction Grants to state revolving funds (SRFs) — a transition marking the end of a 20-year period of federal capital grant investment in wastewater treatment facilities. Can SRFs meet these basic community infrastructure financing needs? To answer that question, the report offers an analysis of EPA Needs Survey data and extensive information developed from a nationwide survey of SRFs, augmented by interviews with state and federal financing and regulatory officials. Case studies of Arizona, Minnesota, Washington and West Virginia illustrate the varying scope and severity of rural needs — and the timeliness of the report's comprehensive recommendations.



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