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# Rural Water Supply and Sewer Systems: Background Information

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# Summary

The Safe Drinking Water Act and the Clean Water Act impose requirements regarding drinking water quality and wastewater treatment in rural as well as urban areas of the United States. Approximately 19% of the U.S. population lives in areas defined by the Census Bureau as rural. Many rural communities need to complete water and waste disposal projects to improve the public health and environmental conditions of their citizens. Small water infrastructure systems often have higher rates of noncompliance than larger systems. In addition, because small systems generally lack economies of scale, their customers face a particularly heavy financial burden to meet needs for clean water investments. Funding needs are high (more than $130 billion, according to state surveys).

Several federal programs assist rural communities in meeting these requirements. In dollar terms, the largest are administered by the Environmental Protection Agency, but they do not focus solely on rural areas. The Department of Agriculture's grant and loan programs support significant financial activity and are directed solely at rural areas. Meeting infrastructure funding needs of rural areas efficiently and effectively is likely to remain an issue of considerable congressional interest.

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# Introduction

The public health and environmental requirements of two federal laws are primarily driving projects in rural, as well as non-rural, areas for drinking water and wastewater treatment. The Environmental Protection Agency (EPA) administers both laws.

For **the quality of drinking water supply**, requirements of the Safe Drinking Water Act (SDWA) apply to public water supply systems, whether government-owned or privately owned. Under this law, EPA regulates the quality of drinking water provided by community water supply systems, which are defined as those having at least 15 service connections. Community water supply systems serve approximately 300 million persons; 19 million persons also get their drinking water from non-community systems (such as wells that serve individual homes, schools, factories, or campgrounds), which are not subject to the act.

Regulated water systems provide drinking water to 97% of Americans. The vast majority of systems are small and privately owned, although most people (70% of those served by community water systems) are customers of large, publicly owned systems. The smallest water systems (serving fewer than 3,300 persons, many serving small clusters of homes) account for 77% of all systems and a similarly high percentage of systems in significant noncompliance with drinking water regulations. Most very small systems have no credit history and have never raised capital in financial markets. Small to medium systems (serving 3,301 to 50,000 persons) are institutionally more capable than smaller systems, yet they also face financing challenges. The smallest of these have limited access to financial markets and creditworthiness more sensitive to local economic conditions than larger systems.

Community water supply systems currently are subject to a number of drinking water regulations issued by EPA under the SDWA. Federal regulations limiting levels of contaminants in treated water are implemented by local water suppliers. These require, for example, system monitoring, treatment to remove certain contaminants, and reporting. New regulations are being developed that are likely to impose additional compliance burdens on these systems within the next few years, and costs of meeting these requirements are a growing concern to water suppliers and policy makers.

EPA estimates that compliance with the regulations already promulgated will provide millions of people protection from numerous industrial chemicals, microbes, and other contaminants in public water supplies. However, to comply, many cities and towns must invest in capital equipment, operation and maintenance, and increased staff technical capacity. Recent regulations with particularly costly implications for small towns include water filtration, lead control, arsenic control, and inorganic and organic contaminant control.

According to EPA, small community water systems (serving up to 3,300 persons) have funding needs of $64.5 billion (17% of the total national need) to provide safe drinking water—accounting for a disproportionate percentage of community water system need. Although small systems account for only 8% of the population served, nearly 83% of all systems with reported funding needs are small communities, EPA said.[1]

For **wastewater treatment**, requirements of the Clean Water Act (CWA) apply to all communities that discharge municipal sewage waste into the nation's waters. About 80% of wastewater treatment and collection *facilities* serve small communities (defined as those with a

[1] U.S. Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey and Assessment*, Fifth Report to Congress (EPA 816-R-13-006), Washington, DC, April 2013, p. 9.

population of 10,000 or less), yet those facilities serve only 7% of the U.S. *population*. Under the CWA, all municipalities were to achieve secondary treatment of municipal sewage (equivalent to removing approximately 85% of wastes from the municipal wastestream), or more stringent, where that is required to meet local water quality standards, by 1988. Much like the Safe Drinking Water Act, small community wastewater systems have higher rates of noncompliance than larger systems. Unlike the SDWA, however, regulatory requirements under the CWA have been fixed for some time. The CWA issue for many cities of all size is continuing efforts to finance improvements that have largely been known for several years.

EPA reported in 2016 that as of 2012, cities throughout the country (of all sizes) would require nearly $271 billion for wastewater facilities to meet water quality standards.[2] EPA estimated that documented funding needs for rural communities totaled $68 billion. Needs for projects in small communities (populations less than 10,000) were $33 billion, or about 12% of the total U.S. funding needs. The largest needs in small communities are for improved wastewater treatment and correction of combined sewer overflows. Five states accounted for 30% of the small community needs (Pennsylvania, New York, Kentucky, Texas, and Alabama). With few exceptions, small community facilities are a large majority of the total number of publicly owned facilities in each state, and in four states (Iowa, Montana, Nebraska, and North Dakota), small community facilities constitute more than 95% of publicly owned facilities. In 19 other states, small community facilities constitute 80% to 95% of the publicly owned facilities. As with meeting drinking water needs, EPA has estimated that, because small systems lack economies of scale, their customers face a particularly heavy financial burden to meet needs for clean water investments. The smallest cities are likely to experience the largest overall percentage increases in user charges and fees as a result, EPA has said.

# Federal Assistance Programs

The federal government administers a number of programs that assist rural communities in developing water and waste disposal systems. The most prominent are programs of the Department of Housing and Urban Development (HUD); the Appalachian Regional Commission (ARC); the Economic Development Administration (EDA); EPA; and the U.S. Department of Agriculture (USDA).[3]

HUD administers assistance primarily under the Community Development Block Grant (CDBG) program, in Title I of the Housing and Community Development Act of 1974, as amended. FY2016 appropriations are $3.0 billion, of which approximately $900 million is available for smaller communities. CDBG funds are used by localities for a broad range of activities intended to result in decent housing in a suitable living environment. Water and waste disposal needs compete with many other public activities for this assistance and are estimated to account for 10% to 20% of CDBG obligations. Program policy requires that at least 70% of funds must benefit low/moderate-income persons. According to data from HUD, in recent years, water and sewer improvement projects have accounted for 9%-10% of all CDBG funds nationally. Thirty percent of CDBG funds are allocated by formula to the states for distribution to small communities and may be available for rural community projects. The larger portion of total

[2] U.S. Environmental Protection Agency, Clean Watersheds Needs Survey 2012, Report to Congress, Washington, EPA-830-R-15005, January 2016, http://www.epa.gov/sites/production/files/2015-12/documents/cwns_2012_report_to_congress-508-opt.pdf.

[3] For information, see CRS Report RL30478, *Federally Supported Water Supply and Wastewater Treatment Programs*, coordinated by (name redacted) .

CDBG funds, 70%, is allocated by formula to metropolitan areas and cities with populations of 50,000 or more and statutorily defined urban counties and thus does not assist rural areas directly.

The ARC assists with programs and projects to provide basic facilities essential to economic growth in the Appalachian regions of 13 states. Investments are concentrated in areas with significant potential for future growth as well as in areas that suffer the greatest distress. States recommend projects for assistance. In FY2016, the ARC is funded at a level of $146 million, budgeted primarily for area development assistance, covering a range of community-based projects including basic infrastructure, business, and human development. Historically, environmental projects have received about 5% of ARC economic and human development funds.

EDA provides project grants for construction of public facilities, including water and sewer systems, to alleviate unemployment and underemployment in economically distressed areas. Development grants provide for infrastructure projects that foster industries and commercial businesses that provide long-term employment and are part of approved overall economic development programs in areas of lagging economic growth. Economic development grants can be used for a wide range of purposes and frequently have a sewer or water supply element. In FY2016, EDA's public works grants are funded at $100 million.

In historic terms, the largest federal program for wastewater treatment assistance is administered by EPA under the Clean Water Act. Since 1973 Congress has appropriated $94 billion in assistance under this act. FY2016 funding is $1.39 billion. Funds are distributed to states under a statutory allocation formula and are used to assist qualified projects on a priority list that is determined by individual states. Prior to 1989, states used their allotments to make grants to cities and other localities. Now, however, federal funds are used to capitalize state loan programs (State Revolving Funds, or SRFs), and project loans are made according to criteria in the CWA. Over the long term, the loan programs are intended to be sustained through repayment of loans to states, thus creating a continuing source of assistance for other communities. Rural and non-rural communities compete for funding; rural areas have no special priority, nor are states required to reserve any specific percentage for projects in rural areas.

Some small communities and states with large rural populations have had problems with the CWA loan program. Many small towns did not participate in the previous grants program and are more likely to require major projects to achieve compliance with the law. Yet many have limited financial, technical, and legal resources and have encountered difficulties in qualifying for and repaying loans. They often lack an industrial tax base or opportunities for economies of scale and thus face the prospect of very high per capita user fees to repay a loan for the full cost of sewage treatment projects. Still, small communities have been participating in the clean water SRF program: an estimated 23% of the $42 billion in SRF assistance since 1989 (representing 67% of loans made by states) has gone to communities with less than 10,000 in population.

In 1996, Congress enacted Safe Drinking Water Act (SDWA) amendments which authorize federal capitalization of state loan programs to help public water systems finance improvements needed to comply with federal drinking water regulations (P.L. 104-182). Since then, Congress has provided $20 billion in appropriations for the drinking water SRF program (DWSRF), which is similar in structure to the CWA SRF program. Elements that differ under the DWSRF include authority for states to make both loans and grants and to assist both privately and publicly owned community water systems. To give states flexibility in meeting infrastructure needs, the law allows a governor to transfer as much as 33% of the annual DWSRF allotment to the CWA SRF,

or an equivalent amount from the CWA SRF to the DWSRF. For FY2016, Congress appropriated $863 million for SDWA SRF assistance.[4] According to EPA, 38% of total assistance since 1996 (representing 71% of all assistance agreements) has gone to systems serving fewer than 10,000 persons.

# USDA Water and Waste Disposal Programs

Grants and loans (direct and guaranteed) for water and wastewater projects are available through rural development programs of the U.S. Department of Agriculture (USDA). Funds are limited to communities with population of 10,000 or less. Communities must be denied credit through normal commercial channels to be eligible for assistance. USDA prefers making loans; grants are made only when necessary to reduce average annual user charges to a reasonable level. The split between loans and grants is about 70-30. In recent years, approximately 65% of loan funds and 57% of grant funds have been obligated to drinking water projects; the remainder have been obligated to waste disposal projects. USDA also makes grants to nonprofit organizations to provide technical assistance and training to assist rural communities with their drinking water, wastewater, and solid waste disposal problems.

Prior to the 1996 farm bill (the Federal Agriculture Improvement and Reform Act of 1996, P.L. 104-127), these USDA grants and loans, as well as other USDA rural development assistance to businesses, industries, and communities, were authorized as separate programs. In P.L. 104-127, Congress endorsed an Administration proposal to consolidate 14 existing rural development grant and loan programs into three categories for better coordination and greater local involvement. The program is called the Rural Community Advancement Program (RCAP). The three components are the Rural Utilities Service (RUS, providing assistance for water and wastewater disposal, solid waste management, and emergency community water programs), Rural Community Facilities, and Rural Business and Cooperative Development.[5] Under RCAP, USDA state offices work with state and local governments, Indian tribes, and private and community organizations to prepare a strategic plan for delivering RCAP assistance to each state. The key concept in RCAP is to involve state and local stakeholders in strategic planning, so that federal assistance will address local priorities more effectively.

The 1996 farm bill did not alter the basic features or statutory requirements of the water and waste disposal grant and loan programs, which are administered through a network of state and local offices. USDA headquarters allocates program funds to the Rural Economic and Community Development state offices through an allocation formula based on rural population, poverty, and unemployment. District RECD offices actually administer the programs. Since 2001 USDA has provided more than $10 billion to more than 7,500 rural water and wastewater systems, benefitting more than 6.5 million people. Subsequent farm bills in 2002 (P.L. 107-171), 2008 (P.L. 110-246), and 2014 (P.L. 113-79) have not significantly modified USDA's rural water and waste disposal assistance programs. The 2014 law extended authorizations for grants and loans through FY2018.[6]

[4] For information, see CRS Report RS22037, *Drinking Water State Revolving Fund (DWSRF): Program Overview and Issues*, by (name redacted)

[5] For information, see CRS Report RL31837, *An Overview of USDA Rural Development Programs*, by (name re dacted).

[6] For additional information, see CRS Report R43718, *Rural Development Provisions in the 2014 Farm Bill (P.L. 113-79)*, by (name redacted).

## Water and Waste Disposal Grants

Grants for the development costs of water supply and waste disposal projects in rural areas are authorized under the Consolidated Farm and Rural Development Act. An eligible project must serve a rural area which is not likely to decline in population below that for which the project was designed, and it must be designed and constructed so that adequate capacity will or can be made available to serve the reasonably foreseeable growth needs of the area.

Grants may not exceed 75% of the development cost of a project and should only be used to reduce user costs to a reasonable level. Grants are only made after a determination of the maximum amount of loan that a community can afford and still have reasonable user rates. Grants, which typically provide 35%-45% of project costs, may be used to supplement other funds borrowed or furnished by applicants for project costs and may be combined with loans when the applicant is able to repay part, but not all, of the project costs. Eligible applicants may include municipalities, authorities, districts, certain Indian tribes, and similar organizations. Priority is given to projects serving populations of fewer than 5,500 persons.

### Emergency and Imminent Community Water Assistance Grants

RUS also is authorized to help rural residents where a significant decline in quantity or quality of drinking water exists or is imminent and funds are needed to obtain adequate quantities of water that meet standards of the Safe Drinking Water Act or the Clean Water Act. Grants, ranging from $10,000 to a maximum of $500,000, are provided for projects to serve a rural area with a population of 10,000 or less that has a median household income not in excess of the statewide nonmetropolitan median household income. Grants for repairs, partial replacement, or significant maintenance of an established system cannot exceed $150,000. Communities use the funds for new systems, waterline extensions, construction of water source and treatment facilities, and repairs or renovation of existing systems and may be awarded for 100% of project cost. Applicants compete on a national basis for available funding. The 2014 farm bill authorized $30 million per year through FY2018 for this program, subject to appropriations. Funding for it is provided through reservation of 3% to 5% of appropriated water and waste disposal grant funds. Amounts actually provided through this program have been quite variable over time, depending on need. In FY2014, $14.7 million was distributed in 14 states; in FY2015, $2.5 million was distributed in 14 states.

## Water and Waste Disposal Loans

The Rural Development Act of 1972 authorized the Rural Development Insurance Fund under the Consolidated Farm and Rural Development Act. Among other activities, this fund is used for loans to develop storage, treatment, purification, or distribution of water or collection, treatment, or disposal of waste in low-income rural areas.

Loans are made to public bodies, not-for-profit organizations, Indian tribes on federal and state reservations, and other federally recognized tribes for projects needed to meet health or sanitary standards, including clean water standards and SDWA requirements. Loans are repayable in not more than 40 years or the useful life of the facility, whichever is less. USDA makes either direct loans to applicants or guarantees up to 90% of loans made by third-party lenders. Borrowers are required to refinance (graduate) to other credit when they can obtain the needed funds from commercial sources at reasonable rates and terms.

Loan interest rates are based on the community's economic and health environment and are designated poverty, market, or intermediate. Poverty interest rate loans are made in areas where

the median household income (MHI) falls below the higher of 80% of the statewide nonurban MHI, or the poverty level, and the project is needed to meet health or sanitary standards; by law, this rate is set at 60% of the market rate. The market rate is adjusted quarterly and is set using the average of a specified 11-bond index. It applies to loans to applicants where the MHI of the service area exceeds the statewide nonurban MHI. The intermediate rate applies to loans that do not meet the criteria for the poverty rate and which do not have to pay the market rate; by law, this rate is set at 80% of the market rate.[7] Interest rates on guaranteed loans are negotiated between the borrower and the lender. The 2014 farm bill amended the water and waste disposal direct and guaranteed loan programs to encourage financing by private or cooperative lenders to the maximum extent possible, use of loan guarantees where the population exceeds 5,500, and use of direct loans where the impact of a guaranteed loan on rate payers would be significant.

Beginning with USDA's FY1996 appropriation, Congress consolidated the water and waste disposal grant and loan appropriations in a single Rural Utilities Assistance Program, consistent with the approach taken in the 1996 farm bill to consolidate delivery of rural development assistance. Funds available through appropriations for USDA's water and waste disposal programs provide $508 million in total for FY2016, including $385 million in grants and subsidy to support direct and guaranteed loans. USDA estimated that, counting both appropriations and repaid loan monies still available, those funds would support more than $1.73 billion in program activity.

In dollar terms, the largest federal programs that solely assist water and waste disposal needs are administered by EPA. Funds available in FY2016 for EPA's clean water and safe drinking water SRF programs total $2.3 billion. They do not focus solely on rural areas, however. USDA's grant and loan programs also support significant financial activity and are directed entirely at rural areas. Still, funding needs in rural areas are high (more than $130 billion, according to state surveys summarized in EPA reports), and there is heavy demand for funds. At the end of FY2007, USDA reported a $2.4 billion backlog of requests for 928 water and wastewater projects for its grant and loan programs.

Among policy makers, interest has grown in identifying or developing alternative financing tools beyond federal grants or SRFs to help communities meet their water infrastructure needs. Finding consensus on an approach and the revenues to support such needed investments are significant challenges. In 2014, Congress enacted legislation that authorizes a five-year pilot program to provide federal loan assistance for water infrastructure projects, called the Water Infrastructure Finance and Innovation Act (WIFIA) program.[8] However, some analysts are concerned that alternative financing approaches—such as the WIFIA pilot program—are more focused on large communities than rural areas, which could have more difficulty making needed infrastructure investments in the future. Meeting the infrastructure funding needs of rural areas efficiently and effectively is likely to remain an issue of considerable congressional interest.

[7] For current interest rates, see http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program.

[8] For information, see CRS Report R43315, *Water Infrastructure Financing: The Water Infrastructure Finance and Innovation Act (WIFIA) Program*, by (name redacted) .

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