

## 6

### **Financial Management and Funding Strategies**

The magnitude of the capital needs of Appalachian communities describes only part of the challenge facing them in regard to water and wastewater services. Even large gaps can be bridged with sufficient resources, and very small gaps can be insurmountable if a community lacks the capacity or the tools. Many recent policy reports offer suggestions and policy inventories for addressing infrastructure gaps at the national, state, and local level. Despite the region's recent gains, Appalachian communities remain some of the most fiscally stressed in the country.

Many of the strategies that seem feasible in other parts of the United States cannot readily be applied in Appalachia. Furthermore, given the diversity of the Appalachian communities and the water and wastewater challenges they face, no single strategy or measure will work throughout the region. So what financial management and funding strategies are likely to have the biggest impact on service in the region? This chapter assesses different strategies, policies, and tools that have been prescribed in national studies or implemented by states and communities in the region. To assess the applicability of these tools, the UNCEFC research team analyzed the fiscal, managerial, environmental, and technical capacity of Appalachian communities in comparison with the capacity required by these strategies.

#### **Major Funding Challenges and Gaps**

Like the country as a whole, Appalachia faces several types of interrelated water and wastewater financing challenges, including capital requirement gaps; annual cash-flow shortages; marginal utility/system fiscal capacity; diminishing household ability to pay; and diverse management-oriented needs. Despite the numerous capital funding programs in the region, a backlog of project funding requests exists in many areas. In other parts of the country, the private capital market provides a large pool of capital funds to supplement limited public capital funds. Although some communities in Appalachia have access to private capital, it is out of reach for the majority of communities in distressed areas.

At the system level, many small utilities have insufficient revenues to cover future cash-flow requirements, once debt repayments and increased operating costs linked to new facilities are taken into account. These utilities are characterized by small and often shrinking customer bases. In some cases, even if grants for capital were available, the utilities would be unable to meet the operating costs associated with their facilities.

Concern about affordability and ability to pay exists in almost every system in the country. Even the nation's wealthiest areas have small pockets of poverty. However, in comparison with the nation as a whole, households in many Appalachian counties are paying a much higher proportion of their income for water and wastewater services, so high in several areas for large numbers of households that asking them to pay more for improved service is infeasible. This household affordability gap has become the critical challenge for many utilities.

Management shortfalls in the region range from small systems that are unable to support trained and educated staff, to large systems that have yet to shift from a reaction-oriented paradigm characterized by high maintenance costs and continual capital stock crises, to a more proactive approach that includes asset management systems, proactive investments, and continual staff training.

### **Regionalization and Local Partnerships**

Increasing the number of regional water and wastewater systems (or decreasing the number of small providers) is one of the few measures that almost all national advocacy organizations and state and federal government agencies endorse as a strategy for improving service and reducing cost. This strategy is described in detail in EPA's *Gap Analysis* and commonly appears among the suggestions made by regional EPA offices.<sup>64</sup> More than 90 percent of the state and federal funding program managers who responded to the UNCEFC survey thought that consolidation could have at least a moderate impact on the funding of water and wastewater services in Appalachia.

The average size of community water systems and the number of such systems vary significantly from state to state (including adjoining states) in Appalachia (for the number per county in selected Appalachian states, see Figure 6-1). This suggests that technology and topography are not the only determinants of the ease with which this strategy can be applied. Kentucky, which has made reducing the number of small systems a priority, tends to have fewer systems per county than most other Appalachian states. New York, North Carolina, and Pennsylvania have an abundance of small systems.

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<sup>64</sup> Environmental Protection Agency, *The Clean Water and Drinking Water Infrastructure Gap Analysis* (Washington, D.C.: EPA, 2002); Environmental Protection Agency, *Mid-Atlantic States, Water Infrastructure Financial Assistance* (last visited April 17, 2005), available at [www.epa.gov/reg3wapd/water\\_infrastructure](http://www.epa.gov/reg3wapd/water_infrastructure).



In addition to recent state efforts to promote consolidation, some states, such as Kentucky and West Virginia, have a history of regional entities and have institutional and regulatory frameworks favorable to regional systems. In other states a go-it-alone culture and a historic model of a single provider prevalent in their system of government make larger, multiple-jurisdiction systems much less common. For example, in North Carolina, municipalities make up a much higher percentage of government-owned systems than they do in West Virginia (see Table 6-1).

**Table 6-1. Government-Owned Utilities in North Carolina and West Virginia**

<b>Government Unit</b>	<b>North Carolina</b>	<b>West Virginia</b>
Municipal systems	402	175
County systems, regional authorities, and other district models	105	161

*Source:* Data from the North Carolina Local Government Commission and the West Virginia Public Utilities Commission, collected through e-mail communication (June 2004 and July 2004 respectively) and compiled by UNCEFC.

In many cases, communities that are part of large regional drinking-water systems maintain independent wastewater systems. One of the obvious reasons for this distinction is that moving drinking water long distances up and down mountains is normally easier and cheaper than moving sewage is. For example, in West Virginia, municipalities are the primary provider of wastewater services, despite the growing number of regional water providers.

Finding the right incentives to overcome the political and cultural attraction of single-jurisdiction systems is a key to making multiple-jurisdiction systems work. Many public funding agencies now incorporate regionalization into their evaluation criteria. About 75 percent of the respondents to the UNCEFC funding survey indicated that they had programs that included incentives for regionalization.

Local governments often put pride or political factors before cost in making decisions about infrastructure, a practice not commonly shared by for-profit companies. The private sector's drive for profits has proven to be very effective in reducing the number of small systems and facilities in certain parts of Appalachia. West Virginia-American Water has built a successful company by paying careful attention to cost, and it has been instrumental in water system consolidations throughout West Virginia (for a case study of this utility, see appendix E). The water company's efforts to build larger, more cost-efficient regional systems has led to a statewide network of eight large water treatment plants that serve or will serve more than fifty communities and districts. According to the company's president, one of the company's fundamental business

tenets is to minimize the number of treatment plants it has in operation, even if doing so requires extensive investments in water distribution lines.<sup>65</sup>

Another factor that encourages West Virginia–American Water and other private companies to invest capital to expand their systems relates to how rates are approved. West Virginia–American Water’s rates are regulated by the West Virginia Public Utilities Commission, and the company is allowed to include a rate of return on its capital investment. If West Virginia–American Water invests in capital to acquire more systems, it can be assured of getting a return on that investment. Government utilities that have their rates approved by their governing board are under political pressure to keep rates low and are less assured of getting a return on capital investments in the system. This makes capital-intensive system expansions riskier. One of the likely reasons why West Virginia’s public service districts have been able to play the role of regional provider is that, although they are government owned, their rates are approved by the West Virginia Public Utilities Commission rather than by elected boards. This arrangement removes some local political pressures from the decision-making process.

Municipal systems in many states also are reluctant to extend their systems beyond their boundaries, especially for low-income or expensive-to-serve customers, because they think that they have no legal or financial obligation to serve “non-voters.” States like North Carolina that have a history of municipal provider models continue to have many areas outside city boundaries without access to centralized water systems. Regional models and options often are considered when a single jurisdiction faces significant system and investment needs. For example, when Weaverville, North Carolina, was planning a new water treatment plant, it considered regional models and partnerships. However, in the end, each of the three cooperating communities decided to proceed independently. (For a case study of Weaverville, see appendix E.)

In some cases, maintaining partnerships can be as difficult as creating them. The future of a regional model that has served a large area of western North Carolina for several years is currently in question. The situation in Asheville illustrates the importance of having regional models in which the multiple participating governments see themselves as equals. The Regional Water Authority, made up of Asheville, Buncombe County, and Henderson County, is an institutional body responsible for water allocation and financial decisions for a water system and treatment plant that is

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<sup>65</sup> Chris Jarret, West Virginia–American Water, interview with authors, Charleston, June 2004. President.

owned and operated by Asheville. Asheville recently announced its decision to withdraw from the authority.<sup>66</sup>

A single large regional provider is not the only regionalization model in Appalachia. Thanks to incentives provided by funding agencies, small systems in some areas have been able to partner as equals and share ownership in new facilities.

Consolidation and regionalization of water and wastewater systems everywhere faces the problem of “us versus them” – that is, the perception that outside influence over matters as vital as water and wastewater services will come at a cost to a community. The loss of autonomy in connecting to another system is quite widely viewed as a cost in itself, often the most substantial perceived cost. This nearly universal human feeling about loss of control over vital services is compounded in many parts of Appalachia by the long, strong cultural opposition to outside influence, even when the outsiders are people of the same cultural, ethnic, and economic background who live just over the ridge. For funders and policy makers to bemoan this fact of the human and Appalachian condition is futile. Instead, they must minimize the other costs and barriers to consolidation and regionalization and develop good information about the economies to be gained from consolidation by each system considering it. Further, they must make these economies clear and understandable, in terms that are meaningful to the layperson, such as improvements in property values and reductions in rates as a result of combined operations. After all, as happened in War, West Virginia, the motivation of an individual community to maintain its autonomy can itself be a source of resources and support for a system by mobilizing leaders to search for external funding sources (for more detail, see the case study of McDowell County, West Virginia, and Letcher County, Kentucky, in appendix E). Nevertheless, the collective good of consolidation will not occur automatically.

### **Full-Cost Pricing**

“Full-cost pricing” is the practice of setting water and wastewater rates at a level that generates sufficient revenues to cover all the capital and operating costs of providing service. From the private sector’s financial perspective, the term almost seems absurd. What company would intentionally price its product or service at a level at which it could not cover its costs? Full-cost pricing and less-than-full-cost pricing remain important issues for water and wastewater companies for several important reasons. First, many water and wastewater entities are not institutionally independent. Rather, they are part of larger government units, such as counties and municipalities. In many states, government entities are legally able to transfer funds between water and

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<sup>66</sup> Jonathan Bernard, “More Surprises – Peterson, Dunn Vote against Water Authority Budget,” *Mountain Xpress* (Asheville, N.C.), 9 June 2004.

wastewater units and other government accounts. The revenues from these transfers, often originating from general tax revenues of the host government, allow many water and wastewater companies to continue operations with artificially low prices. Records from the North Carolina State Treasurer indicate that this practice is common in North Carolina (see Table 6-2).

**Table 6-2. Average Financial Results of Municipal Water and Sewer Systems for the Fiscal Year Ended June 30, 2003**

Population Groupings	Number of Units*	Average Operating Revenues	As Percentage of Operating Revenues		
			Operating Margin	Operating Transfers In (Out)	Net Income
Statewide – All Units	400	\$ 2,852,113	9.2	(1.1)	24.9
Units with Electric Systems:					
All	67	4,987,826	13.6	(1.7)	18.5
10,000 and above	25	11,409,210	15.8	(0.6)	18.6
2,500–9,999	19	2,065,670	5.2	(8.9)	13.6
2,499 and below	23	422,015	(14.8)	(2.6)	34.8
Units without Electric Systems:					
All	333	2,422,405	7.3	(0.7)	28.3
50,000 and above	9	46,957,840	7.2	(0.6)	25.2
10,000–49,999	19	7,967,978	13.6	(1.4)	26.4
2,500–9,999	83	1,789,826	6.6	(2.2)	23.9
1,000–2,499	88	652,770	1.6	2.5	54.4
500–999	64	269,662	(10.7)	0.6	33.2
499 and below	70	134,159	(12.1)	(1.8)	42.3

Source: North Carolina Department of State Treasurer, *Memorandum #1017, Statistical Information on Water and Sewer Operations* (Raleigh, NC: N.C. State Treasurer, 28 April 2004), available at [www.treasurer.state.nc.us/NR/rdonlyres/4ED70521-087E-47F4-B61E-E0CFAC8BB47A/0/Memo1017.pdf](http://www.treasurer.state.nc.us/NR/rdonlyres/4ED70521-087E-47F4-B61E-E0CFAC8BB47A/0/Memo1017.pdf).

\* Number of units with water and wastewater systems that submitted audit reports by April 20, 2004.

Another reason for the widespread disconnection between prices and costs is that annual budgets and short-term cash-flow requirements, rather than financial statements, are the primary drivers of financial decisions made by government-owned water systems. Budget and cash-flow needs frequently mask the need for capital investment, allowing local governments to charge rates that cover basic operating costs but do not contribute sufficiently to capital stock investments and upkeep. Needed repairs often are deferred until the whole system breaks, requiring a capital infusion. In North Carolina the 134 smallest systems in Appalachian municipalities that do not run electric utilities had more than a negative 10 percent operating margin in 2003.

Nationally the EPA found that smaller systems are much more likely than larger systems to operate at a loss.<sup>67</sup>

Full-cost pricing is one of EPA's four pillars of sustainable infrastructure.<sup>68</sup> It also is strongly supported by professional organizations like AWWA.<sup>69</sup> High-profile national policy studies include assumptions about price increases to demonstrate the ability of local communities to meet their infrastructure needs.<sup>70</sup> When asked in the UNCEFC survey about the potential of full-cost pricing to help communities meet their infrastructure needs, funding program managers were split. Thirty percent of the managers responding to the survey thought that it would have a major impact, 29 percent a moderate impact, and 36 percent a small or no impact.

During interviews and discussions, local, state, and federal officials all reported that in many areas of the country, income constraints were a significant barrier to systems charging full-cost prices. In 1999 in Appalachia, 67 percent of the households paid a water and sewer bill directly, 10 percent had their bills included in the rent, and 23 percent reported not having to pay for water and sewer services (probably because the households were not connected to centralized systems) (for an explanation of the methodology used to generate these data, see appendix K). Of the 67 percent that paid directly for water and sewer services, the average household expenditure for those services was \$403, equivalent to an average proportion of income spent on these services of 1.65 percent.

For Appalachian households that pay directly for water and sewer services, their average expenditures in absolute terms (\$403) are lower than the national average (\$476). However, this statistic may be misleading since the expenditures that were reported by the households include bundled water and wastewater services, and a smaller proportion of Appalachian households are connected to centralized wastewater services than the rest of the country on average. In other words, if water and wastewater average expenditure information was collected and shown separately, it is likely that Appalachian households would pay the same if not more for comparable

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<sup>67</sup> Environmental Protection Agency, *2000 Community Water System Survey* (Washington, D.C.: EPA, 2002), app. 2.

<sup>68</sup> Environmental Protection Agency, *Sustainable Water Infrastructure for the 21st Century* (last visited 17 April 2005), available at [www.epa.gov/water/infrastructure/](http://www.epa.gov/water/infrastructure/).

<sup>69</sup> See AWWA *E-Mainstream*, 28 September 2004.

<sup>70</sup> EPA, *Gap Analysis; Water Infrastructure Network, Clean and Safe Water for the 21st Century: A Renewed National Commitment to Water and Wastewater Infrastructure* (Washington, D.C.: the Network, 2000).

services. As a percentage of income, Appalachian families spend a greater percentage of their income on water and wastewater services (1.65 percent) than the rest of the country on average (1.51 percent).<sup>71</sup>

The difference in expenditures in some areas is striking. West Virginia households spend, on average, the greatest percentage of their income (2.22%) on water and wastewater services than households of any other state in the United States<sup>72</sup>. In fact, West Virginia is the only state where the average percentage of income spent on water and wastewater services exceeds 2% (see Figure 6-2).

At the county level, the average household expenditure on water and wastewater services in Appalachia varied from \$232 in Gordon, Murray, and Whitfield counties in Georgia to \$622 in Lackawanna County in Pennsylvania. The average proportion of household income spent on water and wastewater services also varied widely, from 0.75 percent in Forsyth County in North Carolina to 2.75 percent in Dickenson, Lee, Russell, and Wise counties in Virginia.

Households in West Virginia, eastern Kentucky, and parts of Alabama and Pennsylvania already pay relatively high percentages of their income for water and wastewater services. Raising the price in these areas would be more difficult than doing so in areas in Georgia, South Carolina, and southern New York. Most of the distressed counties in Appalachia are among the areas where households pay the highest amounts and the greatest percentages of their incomes for water and wastewater services. Twenty-nine percent of households in Fayette, Greenbrier, Nicholas, Pocahontas, and Webster counties in West Virginia pay more than 2.5 percent of their income for water and wastewater services, whereas only 4 percent of households in Gwinnett County in Georgia do. In 1999 in Appalachia, 15 percent of all the households that paid directly for water and wastewater services paid more than 2.5 percent of their income for those services, and 5 percent paid more than 5 percent of their income.

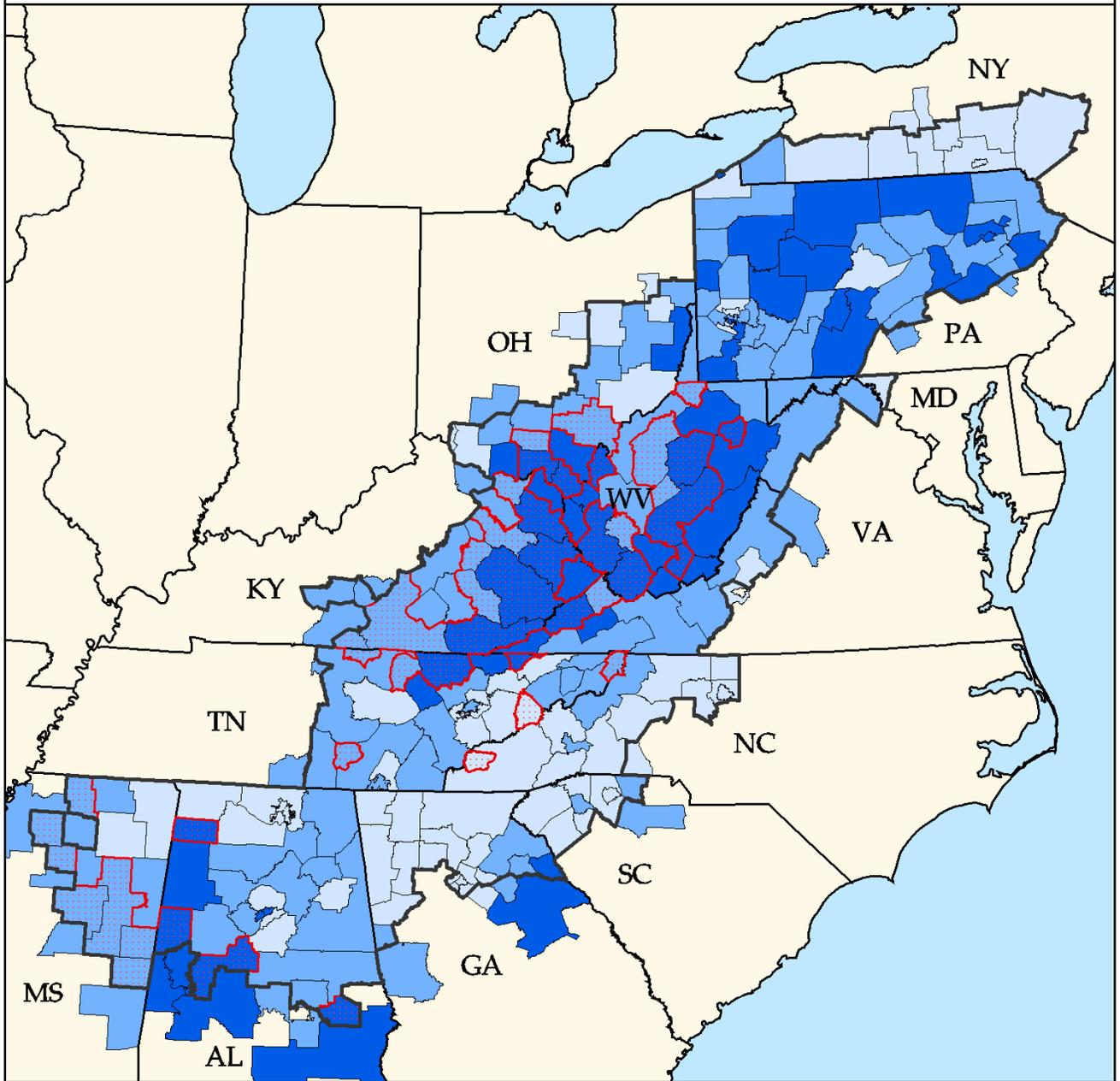
A comparison of what utilities inside and outside the Appalachian region of Ohio charge their customers shows that on a statewide basis, Appalachian customers are charged more for water both in absolute terms and as a percentage of median household income. Based on a statewide monthly average consumption rate of 7,756 gallons per customer, about 50 percent of utilities in the Appalachian region of Ohio charge customers at least \$30 per month. Approximately 30 percent of the utilities in the

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<sup>71</sup> U.S. Census Bureau, Public Use Microdata Sample 5-Percent Files, available on [ftp://ftp2.census.gov/census\\_2000/datasets/PUMS/FivePercent](ftp://ftp2.census.gov/census_2000/datasets/PUMS/FivePercent). Data downloaded and compiled by UNCEFC, using HWEIGHT, WATER and HINC.

<sup>72</sup> Scott Rubin (2003), *The Cost of Water and Wastewater Service in the United States*. Available at [www.publicutilityhome.com/speeches/Cost%20of%20Water.pdf](http://www.publicutilityhome.com/speeches/Cost%20of%20Water.pdf). Table 8.

**Fig 6-2. Average Percentage of Household Income Spent on Water and Wastewater Services in Appalachia, in 1999**



Data Source: U.S. Census Bureau, Public Use Microdata Sample 5-Percent Files, available on [ftp://ftp2.census.gov/census\\_2000/datasets/PUMS/FivePercent/](ftp://ftp2.census.gov/census_2000/datasets/PUMS/FivePercent/). Data downloaded and compiled by UNCEFC, using HWEIGHT, WATER and HINC. Map shows distressed counties from 2004 ARC Economic Status data. Note: Individual household weights were used to extrapolate results to the population. Only households paying a system directly for water and sewer service and with at least \$1,000 in annual income in 1999 are included in this analysis.

- Less than 1.5%
- 1.5 through 2.0%
- More than 2.0%
- Distressed Counties

non-Appalachian region charge more than \$30 currently. The customer cost of water exceeds 2 percent of the median household income for approximately 18 percent of the utilities in Appalachia and less than 1 percent of the utilities in the non-Appalachian region.<sup>73</sup> The same trend was observed in other states. In his response to the UNCEFC survey, an official working for Virginia's Community Development Block Grants program said he thought that the Appalachian communities in Virginia had the highest rates in the state, to the point that they had "maxed out" their potential to incur debt.

While funding and regulatory programs often employ universal metrics to determine whether water is affordable or not, at the local level, full-cost pricing becomes an issue of willingness to pay that is difficult to estimate without understanding local conditions. Communities in parts of Appalachia that currently pay a lot for their services or have bad service, have demonstrated a willingness-to-pay-more that appears to be much higher than in other areas. For example, given the choice of high rates and service, or low rates and no service, many residents of McDowell County, West Virginia, one of the poorest counties in the United States, have chosen high rates. Customers now pay as much as \$9 per 1,000 gallons, a rate that many leaders in far wealthier areas of the country would consider infeasible.

The relationship between public funding programs and local initiatives for full-cost pricing is complicated. One could argue that by providing utilities with grant assistance, public funding programs send the message that less-than-full-cost pricing is acceptable. Many funding program managers interviewed and surveyed for this report acknowledged this relationship. They indicated that they use their grants only as a last resort for communities able to demonstrate that their residents cannot afford to pay the full cost of service. Half of the funding survey respondents indicated that they manage programs that include funding incentives for communities willing to move toward full-cost pricing. Indeed, 52 percent of the funding programs have conditions that require community rates to be at a certain level or to be increased to obtain funds. The definition of "affordable rates" used as a trigger by funding agencies varies widely across programs and states.

Accident, in Garrett County, Maryland, illustrates the challenge of full-cost pricing facing many small communities in Appalachia. Accident is quite poor, with a median household income of \$22,500, compared with \$52,868 for all of Maryland, and an unemployment rate of 6.8 percent.<sup>74</sup> In 1999 a family with average consumption (4,000

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<sup>73</sup> Ohio Environmental Protection Agency, Office of Fiscal Administration, *2002 Sewer and Water Rate Survey* (Columbus: OEPA, 2004), available at [www.epa.state.oh.us/ofa/sw02/02report.pdf](http://www.epa.state.oh.us/ofa/sw02/02report.pdf) July 2004.

<sup>74</sup> Data on income from Census Bureau, Census 2000, Summary File 3, Table P53; data on unemployment calculated by UNCEFC from Census Bureau, Census 2000, Summary File 3, Table P43.

gallons per month, according to billing records) was charged \$196 a year for wastewater services and \$138 for water services. Together these payments represent about 1.5 percent of the median household income of Accident – a percentage that is high but still lower than the proportion in many other parts of the region.

Accident recently completed a series of major investments to improve and upgrade its wastewater collection and treatment facilities. The improvements were necessary to meet the requirements of a consent decree and to correct severe public health and environmental problems. The investment upgrades cost about \$3 million and were funded primarily by grants. However, as part of the funding package, the town had to borrow \$480,000 from USDA at a rate of 4.5 percent over forty years. The debt service for this loan will cost each of Accident's 197 customers about \$130. If the town had borrowed the full amount from USDA, the cost per household would have risen to more than \$800 per customer. If Accident had not received the substantial grants and if customers had been asked to pay the full cost of service, their annual payment for water and wastewater service would have been about \$1,000 per year, or 4.4 percent of their median household income – an amount that far exceeds what any county in Appalachia currently pays.

Overall, Appalachia is one of the best “laboratories” in the country for demonstrating the potential and the limitations of full-cost pricing. Appalachian communities are an example of the willingness of people to make financial sacrifices in order to guarantee sustainable, high-quality water and wastewater services. At the same time, many of these communities continue to have substantial needs. A time comes when price increases reach their limits.

The region also shows that funding agencies play different roles in promoting full-cost pricing, with some carefully incorporating it into their decisions. The bottom line: Appalachia has demonstrated that many communities can contribute to meeting their needs but many communities cannot generate adequate revenue to meet future needs with price increases.

### **Rate-Making Strategies for Low-Income Customers**

Like many other organizations, EPA often suggests that utilities use “lifeline rates” or other special strategies to ensure that low-income customers are insulated from the impacts of full-cost pricing. Utilities can lower rates for low-income customers directly by establishing rate structures that take income levels or other economic indicators into consideration. According to West Virginia–American Water staff, American Water's subsidiaries in Pennsylvania have used this approach for years. West Virginia–American Water has proposed using a similar rate structure for its customers. Again according to the utility's staff, under the proposal, customers whose income is below

the federal poverty level would receive a 25 percent discount on their minimum-allowance charge.

This type of strategy is infeasible where state law prohibits governments from establishing different rate structures for different income classes. For example, North Carolina law does not give municipal water and sewer enterprises the authority to develop classes of customers based solely on income or to have two separate rate structures based on the household income of customers. In other words, a system cannot charge a low-income customer who uses 5,000 gallons per month less than it charges a wealthier customer who consumes 5,000 gallons per month.

Utilities can consider household income, though, in developing rate structures applied to all customers. For example, in some areas, customers living in larger houses have been shown to have higher base-consumption amounts than customers living in smaller houses. The former type of customer may use 8,000 gallons per month, and the latter 3,000 gallons. Rate structures can be designed so that the price per gallon for the first 3,000 gallons is significantly lower than the price per gallon for 3,000–8,000 gallons. This approach often can be supported by cost considerations. Serving large users of water, especially those who consume a lot more in the summer than in the winter, can usually be shown to be more costly than serving customers who use a more modest, consistent amount.

### **Targeted Assistance for Low-Income Customers**

In most cases the primary objective of reducing the price that low-income customers pay for water and wastewater services is to ensure that they have sufficient funds to meet other basic needs. Providing direct funding assistance to low-income water and wastewater customers, rather than trying to reduce their rates, can achieve the same objective. The National Drinking Water Advisory Council has recommended that EPA create a Low Income Water Assistance Program (LIWAP) modeled after the Low Income Heating Assistance Program (LIHEAP).<sup>75</sup>

This type of targeted assistance also can be established at the state or local level. For example, the Orange Water and Sewer Authority in North Carolina runs a Taste of Hope program, under which water customers are urged to round up their bills when they make payments. The extra funds generated by this rounding are transferred to a

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<sup>75</sup> National Drinking Water Advisory Council, *Recommendations of the National Drinking Water Advisory Council to U.S. EPA on Its National Small Systems Affordability Criteria*, July 2003, available at [www.epa.gov/safewater/ndwac/pdfs/report\\_ndwac\\_affordabilitywg\\_final\\_08-08-03.pdf](http://www.epa.gov/safewater/ndwac/pdfs/report_ndwac_affordabilitywg_final_08-08-03.pdf).

local nonprofit social service agency that provides direct financial assistance to low-income water customers who are unable to pay their bills.

CBO has been critical of many public funding programs that distort prices by using federal grant funds to pay for projects and thus reducing prices below the true cost of water. CBO has recommended that federal funds be more targeted toward disadvantaged communities and low-income households.<sup>76</sup>

### **Asset Management**

“Asset management” is widely used to refer to a collection of proactive policies, procedures, and strategies seeking to ensure that capital assets provide high-quality services in a cost-effective manner. Improved asset management has long provided substantial benefits to communities in Australia and offers potential to many U.S. communities. Some asset management systems are so basic as to be in reach of even the smallest community and can and should be promoted in Appalachia. Some larger communities in Appalachia, such as Asheville, North Carolina, have developed advanced asset management systems that are beginning to provide cost benefits. Such systems often require significant up-front planning investments, political commitment, and skilled staff to ensure proper implementation. All of these are in short supply in the most economically distressed communities in Appalachia. More data and research are needed to determine the full potential of asset management systems in small rural communities, but in the short term, there are enough obstacles to implementing these systems that this strategy alone is unlikely to have a major impact on Appalachian water and wastewater funding needs.

### **Improvement of Water Efficiency**

Improving water efficiency is the third pillar of EPA’s sustainable infrastructure program.<sup>77</sup> It includes everything from installing water-efficient fixtures to reducing distribution-system leaks. This measure can have varying financial impacts on local utilities, depending on the size and the type of system.

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<sup>76</sup> Congressional Budget Office, *Future Investment in Drinking Water and Wastewater Infrastructure* (Washington, D.C.: CBO, November 2002), available at [www.cbo.gov/showdoc.cfm?index=3983&sequence=0](http://www.cbo.gov/showdoc.cfm?index=3983&sequence=0).

<sup>77</sup> Environmental Protection Agency, *Sustainable Water Infrastructure for the 21st Century* (last visited April 17, 2005), available at [www.epa.gov/water/infrastructure/](http://www.epa.gov/water/infrastructure/).

The most direct financial benefits accrue to communities that currently have large, unaccounted-for water losses and are purchasing treated water from other systems to resell, or paying other systems to treat their wastewater. (There are 1,260 community water systems that purchase water from others; see Figures 2-4 and 2-5.) As more small systems begin relying on larger regional facilities for treatment, the incentives for reducing water losses will likely increase.

Improved water efficiency can have unexpected consequences. In West Virginia, for example, efficiency improvements and conservation have had such a major impact across the state that the average water consumption per connection has dropped from 4,500 to 4,000 gallons per month. According to state officials, many communities designed and financed facilities using water-demand and cash-flow models with the higher estimate and are now experiencing revenue shortfalls.

Improving efficiency does appear to be one area in which federal, state, and local agencies are providing significant assistance to communities. The Rural Water Association, the Rural Communities Assistance Project, and state capacity development staff offer water audits and other technical assessment programs to help small utilities improve their efficiency.

### **Planning Grants and Assistance**

Many of the funding program managers whom UNCEFC surveyed thought that the lack of planning and the lack of financial assistance for planning made developing sustainable, well-conceived water and wastewater systems difficult for communities. Although public funding programs have provided billions of dollars in funds for water and wastewater systems, only a small percentage of those funds have gone toward preliminary planning efforts. When public funding programs do support such efforts, normally they do so only after an overall project has been approved and constructed.

Some state programs have recognized this problem and created special planning or administrative funding programs. North Carolina's Capacity Grants Program provides up to \$40,000 for system feasibility studies. In many states, funds distributed by ARC are among the few that can be used to study and plan a project.

Local officials in Jasper, New York, think that the planning funds the town received through ARC's local development district were essential in developing community support for its project to construct a centralized wastewater system in the town. (For more detail, see the case study of Jasper in appendix E.)

### **Improved Access to the Private Capital Market**

As noted in chapter 5, relatively few communities in Appalachia have ratings from Moody's Investors Service for bonds with a designated water or wastewater purpose (see Figure 5-2). The figure does not include bond issues that were used for multiple projects that may have included water and wastewater components. Nor does it give an indication of communities that have worked with local banks to finance infrastructure projects through other credit means, such as lease installment purchases or certificates of participation. Nevertheless, the figure does demonstrate a commonly held view by public officials throughout the region that private capital has played a less important role in infrastructure development in Appalachia than in other areas of the country.

In the UNCEFC survey, only 5 percent of public funding program managers responding thought that improving access to commercial credit would have a significant impact on water and wastewater services in the region. Sixty-six percent thought that improved access would have a small impact or no impact at all, and 29 percent thought that improved access would have a moderate impact. Of course, to stay in business, many of these public funding programs depend on communities with poor credit.

Despite the limitations of this funding strategy in Appalachia, in some Appalachian communities, it has been instrumental in improving services. Weaverville, North Carolina, with its growing population of affluent retirees and Asheville commuters, used a general obligation bond to finance a new water system (for a case study of Weaverville, see appendix E).

### **Offering of Attractive Loan Terms**

For many communities with marginal fiscal capacity, careful manipulation of funding terms may offer the best hope for stretching limited public dollars. In some situations, long-term loans can make a capital project feasible for a community. USDA, the Ohio Water Development Authority, and West Virginia's CWSRF are examples of programs that offer thirty- and forty-year loans under special conditions to disadvantaged communities. These loans should be made only after careful evaluation of a project. Generally accepted accounting principles dictate that loan terms not exceed the useful life of a facility.

In the UNCEFC survey, several CWSRF fund managers indicated that the inability of states to offer EPA-capitalized SRF program loans beyond terms of twenty years made the programs less attractive to communities. Although federal restrictions influence the ability of SRF programs to offer extended loans for drinking water and clean water projects, some states have successfully crafted longer-term SRF packages for

disadvantage and distressed communities. Georgia and South Carolina are among the states that have chosen to implement optional disadvantaged community programs. Under the DWSRF disadvantaged community programs, states must develop their own criteria for identifying disadvantaged communities and then can offer thirty-year loans and principal forgiveness to these communities. (All other DWSRF loans must be for no longer than twenty years.)

At least one Appalachian state, West Virginia, has gone a step farther. It has used a special provision of the Clean Water Act to develop and gain EPA approval for a thirty-year extended wastewater loan program that relies on CWSRF funding.

### **Establishment of State Funding Sources**

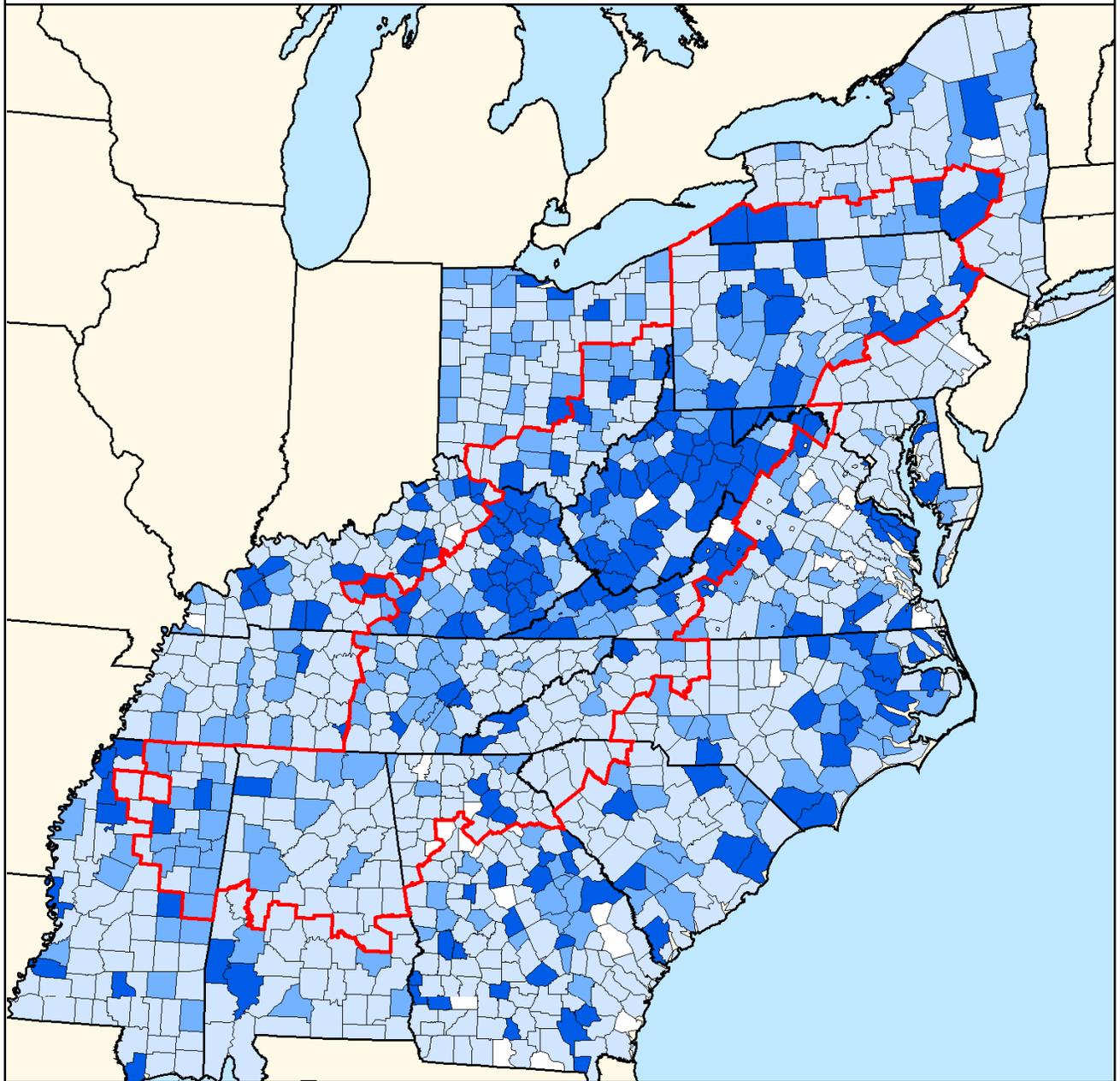
One of the most basic steps that a state can take to help its communities is to create a funding program that relies on revenues collected or pooled by the state. Twelve of the 13 states in Appalachia have at least one major state funding program that has invested funds in the region. In total, the twelve states have created thirty-two programs that are distinct from federal programs (see chapter 5 for more details). (For per capita funding levels for state and federal programs from 2000 through 2003, see Figure 6-3. The data include both the Appalachian and the non-Appalachian region of each state.) State funding for water and wastewater projects varies considerably in the region, with West Virginia state programs disbursing capital funds (loans and grants) totaling \$175 per capita, compared with other states disbursing less than \$10 per capita.

### **Pooled-Loan Programs**

The private capital market in the United States has proven to be an essential component of infrastructure. However, it still is a tool beyond the reach of many communities in Appalachia. Many states have developed innovative methods of pooling loans for small, credit-risky communities to reduce their risk. These pooled-loan programs often operate under the name “bond bank.” They follow several designs, but the common approach is to use a combination of state administrative capacity and creditworthiness to obtain private capital at more favorable terms than individual communities could obtain. Across the country, bond banks have provided billions of dollars of funding for water and wastewater infrastructure by offering a range of programs and services.

Several states in Appalachia currently operate pooled-loan programs. They follow several models. The West Virginia Infrastructure and Jobs Development Council operates the largest program, having provided more than \$215 million dollars in loans to communities from 2000 through 2003. The council was created in 1994 by the Infrastructure and Jobs Development Act. The act also authorizes the state to issue \$300

**Figure 6-3. Per Capita Disbursements for Water and Wastewater Projects from Federal and State-Originated Programs**



Data Source: UNCEFC Master Funding Database, 2004

Note: Data from the 48 largest programs of the 13 states are included. Data do not include approximately 5% of all Community Development Block Grants for Non-Entitlement Cities, awarded across the 13 states.

- No Public Funding or No Data
- Less than \$50
- \$50 through \$100
- More than \$100
- ARC Boundary

million in general obligation bonds for infrastructure.<sup>78</sup> The act was modified in 1998 to allow the council to sell revenue bonds to provide additional funds to communities. The general obligation and revenue bond proceeds are made available to local communities as grants (about 20 percent of the funds) and as loans at 0, 1, and 2 percent interest for twenty years. The state uses coal severance taxes to retire the original general obligation bond issue and established community (as opposed to new) loans to retire the revenue bonds.<sup>79</sup>

The Ohio Water Development Authority invested almost \$50 million in water and wastewater infrastructure in Appalachia from 2000 through 2003 in the form of thirty-year market-rate loans, as part of its commitment to Appalachian communities. The authority's borrowers benefit from its superior credit rating and obtain loans for longer terms and at lower interest rates than they would on their own, but the program does not include any other embedded subsidies. Although these interest rates are higher than the SRF interest rates in Ohio (for loans also managed by the authority), many communities favor the loans for their reduced administrative requirements and longer loan terms.<sup>80</sup>

Virginia maintains one of the oldest pooled-loan programs in the region. The Virginia Resources Authority issues revenue bonds that have several layers of security, including local government loan repayments that provide a 1.4 debt-service coverage and a state aid program that indirectly backs the bonds with the moral obligation of the state. The last Senior Series bond issue in June 2004 carried Moody's highest rating, Aaa.<sup>81</sup> The Virginia pooled-loan program invested more than \$20 million dollars in Appalachia from 2000 through 2003.

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<sup>78</sup> West Virginia Infrastructure and Jobs Development Council, *2002 Inventory and Needs Assessment Report* (Charleston: the Council, 2003), available at [www.wvinfrastructure.com/reports/index.html](http://www.wvinfrastructure.com/reports/index.html).

<sup>79</sup> Katy Mallory, West Virginia Infrastructure and Jobs Development Council, telephone conversation with authors, October 2004.

<sup>80</sup> Steve Grossman, Ohio Water Development Authority, telephone conversation with authors, October 2004.

<sup>81</sup> Moody's Investors Service, *Moody's Issue Rating Infrastructure Revenue Bonds, Senior Series 2004A (Non-AMT)* (June 2004).

### Streamlining of, Coordination of, and Cooperation among Funding Programs

Capital funding comes from a wide variety of sources, making planning and management of applications, and timing of grants, loans, and matches a significant challenge for communities. “Too many hoops to jump through” is how one state SRF administrator put it in describing Appalachian communities’ challenges in developing projects. Many of the local and state officials interviewed and surveyed for this project thought that administrative and timing issues of different public programs were the key challenge for local governments in carrying through with a project. At the time this report was being drafted, Jasper, New York, was struggling to meet the deadlines of one of its four project funders. Although this funder provided a relatively small part of the total project cost, the loss of it would have killed the entire project (for a case study of Jasper, see appendix E). More often than not, communities require multiple funding sources to complete a project successfully. Combining local, state, and federal grants and loans, each with their own requirements and deadlines, can be a challenge for even the most savvy local government and can be insurmountable for communities that lack administrative capacity.

In the UNCEFC survey, the research team asked funding program managers several questions related to collaboration among programs. Managers who were responsible for multiple programs tended to feel strongly that there should be more collaboration, whereas those who were responsible for only one program were more evenly split. (For the percentages of funding program managers who rely on the different coordination methods, see Table 6-3.)

**Table 6-3. Funding Coordination Methods Used by Funding Program Managers in Appalachia**

Method	% Using
Informal discussions	94
Shared databases or information	56
Part of infrastructure coordination organization	53
Shared application forms	18

*Source: UNCEFC Program Managers Funding Survey (Chapel Hill: UNCEFC, 2004) (see appendix D).*

The states in Appalachia have different types of coordinating organizations. They range from a legislative infrastructure council that has not met in more than two years (North Carolina), to an ad hoc funders group that meets regularly to evaluate projects (Ohio), to a staffed infrastructure development council that maintains elaborate project databases and makes recommendations for funding packages for each identified major project need in the state (West Virginia).

### The Role of Private Service Providers

Opinions about private service providers in the United States and Appalachia are as varied and confusing as the terminology and the models associated with them. EPA categorizes all water systems in which the assets are not owned by a government jurisdiction as private, including systems that are run by nonprofit entities or trailer parks whose water business is a secondary part of their operation. Most of the debate about privatization, though, centers on the subgroup of private service providers that are truly for-profit enterprises, with profit-oriented goals and management strategies that cannot be separated from their service goals.

For-profit water companies, and to a lesser extent for-profit wastewater companies, already play an important and growing role in many Appalachian communities. Privatization offers some communities a way to attain the economies of scale that regionalization brings, as well as access to greater technical and managerial capacity than is likely in a go-it-alone approach. Equally important, large multiple-jurisdiction for-profit providers offer rate-setting and institutional options not readily available to isolated single-jurisdiction systems.

Numerous state officials interviewed for this study were quick to point out that in some areas of Appalachia, for-profit companies have made important public health water investments in their service areas, well beyond what local-government-controlled utilities have made in their service areas. State officials also are quick to point out that these investments have come at a significant cost and that in many cases, customers served by for-profit companies are paying significantly more for water service than customers served by government utilities are paying. For example, of the 420 public and private water utilities monitored by the West Virginia Public Services Commission, West Virginia–American Water was ranked 14th in amount charged in 2003.<sup>82</sup>

For those in favor of for-profit company involvement, the higher cost is normally attributed to the cost associated with better, more modern facilities and is justified as necessary to meet public health needs. Private-sector advocates with whom the research team spoke stressed that their operational strategies, such as shared management and technical expertise, larger facilities, and bulk purchasing of chemicals, all lead to important cost efficiencies. Those wary of for-profit involvement attribute the higher charges primarily to return on capital (a form of profit), taxes, and higher costs of capital acquisition (because the tax-free municipal bond market and many government funding programs are out of reach to many for-profit companies).

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<sup>82</sup> American Water Works Association, *Dawn of the Replacement Era: Reinvesting in Drinking Water Infrastructure* (Denver: the Association, 2001).

At the local level, officials in communities like Mercer County, West Virginia, which has seen millions of dollars in infrastructure investment from for-profit companies, voiced support for their nongovernment service providers. Other local officials to whom the research team spoke, who have succeeded in creating large government regional water providers, such as the Public Service District in Putnam County, West Virginia, felt strongly that more government options still need to be developed that have incentives for capital investments without the cost items that for-profit providers add.

In the end, most state officials to whom the UNCEFC research team spoke admitted that given the choice between higher costs and more proactive capital investment, they would choose higher costs. However, both they and the private-sector managers to whom the research team spoke stressed that there are communities in which “the numbers don’t work” and that are unlikely to benefit from for-profit investments.

Further, private systems will not reach the most remote and difficult-to-serve communities in Appalachia. Private providers will seek to serve the systems with relatively low costs and high revenues. In addition, for-profit providers’ higher cost of obtaining capital, their profit needs, and their tax burdens inevitably influence the price their customers pay for water. The trade-offs between the benefits of consolidated private systems and the extra revenue requirements must be evaluated case by case throughout the region.

### **A National Trust Fund**

Although many state and federal officials suggested that more federal funding assistance was required to meet all the needs in the region, no one specifically mentioned or described a new national trust fund similar to the existing one for national highway improvement. However, several advocacy organizations, including the Association of Metropolitan Sewerage Agencies (AMSA), AWWA, and WIN, have called for the establishment of such a fund as a possible method of helping Appalachian communities.<sup>83</sup> AMSA has been one of the most vocal advocates of the fund and has published multiple papers and reports outlining potential structures and funding sources for it.

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<sup>83</sup> *Ibid.*; Association of Metropolitan Sewerage Agencies, *The Cost of Clean* (Washington, D.C.: the Association, 1999), available at [www.amsa-cleanwater.org/pubs/cost/coc.pdf](http://www.amsa-cleanwater.org/pubs/cost/coc.pdf); Water Infrastructure Network, *Clean and Safe Water for the 21<sup>st</sup> Century: A Renewed National Commitment to Water and Wastewater Infrastructure* (Washington, D.C.: the Network, 2000), available at [www.amwawater.org/features/win/win.html#report](http://www.amwawater.org/features/win/win.html#report).

### Optimization of Grant Programs

Although opinions were mixed on the impact that most measures would have on assisting Appalachian communities, almost all the funding program managers whom the UNCEFC research team surveyed thought that grants would have major impacts. When asked to estimate the impact that different measures would have in helping communities meet their needs, 81 percent of the respondents indicated a large impact for grants. Similarly, almost 50 percent of the funding program managers responding felt that the inability of specific programs to offer grants was a major obstacle in the programs' helping distressed communities.

Most high-profile policy reports include conclusions and recommendations regarding grant funds. Dozens of separate programs, most of which are state based, offer grants to Appalachian communities. The sources of funds for these programs range from current-year appropriations to state bonds backed by general taxes.

Determining which communities receive grants can be a major challenge. Although most funders seem to agree that grant funds should go to communities "most in need," some argue that grants made to the most fiscally distressed communities may be counterproductive in supporting communities that do not have the managerial and financial capacity to maintain a viable system and, in the worst case, do not have the funds to operate the system the grant supported. Some states have used grants as an opportunity to encourage or force communities to address their shortcomings in fiscal capacity by partnering with other communities. For such strings to have an impact, a comprehensive funding strategy must be in place. Otherwise, as many officials reported, communities will play funders off each other and go to the funder that requires the least and provides the most. The West Virginia Infrastructure and Jobs Development Council's system of reviewing project requests to multiple programs and recommending a comprehensive package has allowed it to distribute grants in a much more planned and focused manner.

### Summary

In conclusion, no single strategy offers a way out of the problem of water and wastewater funding shortfalls in Appalachia, but there are many interrelated actions that federal and state policy makers and local communities can take to have a positive impact on water and wastewater capital funding. For most communities, particularly those that are economically distressed, addressing the shortfalls in a sustainable manner requires external support combined with local initiatives. Communities without access to external funding in many cases are unable to meet their needs. However, outside capital alone is not sufficient to guarantee sustainable services. Local communities without an understanding of how to tie together different funding programs are

unlikely to be able to assemble a funding package with sufficient resources to meet their needs. Funding sources like ARC that can provide planning grants and other up-front money can help communities stitch together the funding patchwork that has become the norm since the passing of the major federal construction grants program of the 1970s. Strategies such as full-cost pricing and asset management are more likely to help meet the capital gap facing larger communities with existing infrastructure investments to manage and with large customer bases, than they are likely to help smaller communities. However, communities unwilling to charge their customers higher rates for water and wastewater services may be unable to maintain new capital infrastructure even if they do succeed in attracting outside funding assistance.

For large-scale policy-making purposes, understanding the immensity of the needs facing the region as a whole is important. Ultimately, though, understanding the needs of individual communities may provide more guidance. The prototypical Appalachian community has a relatively small customer base and a need for what may be its first central treatment plant and distribution network. But it has no meaningful access to the private capital market in the absence of a state pooled-loan arrangement, and no cost-effective way to hook up to a nearby system that lies over a mountain ridge. It is going to need outside capital funding help from state or federal grants to address its water and wastewater capital needs. The challenge to federal and state funding agencies is not only to provide assistance but to do so in a way that is sustainable. Designing funding programs and packages that encourage local sustainable management practices should be an essential component of any external funding assistance.