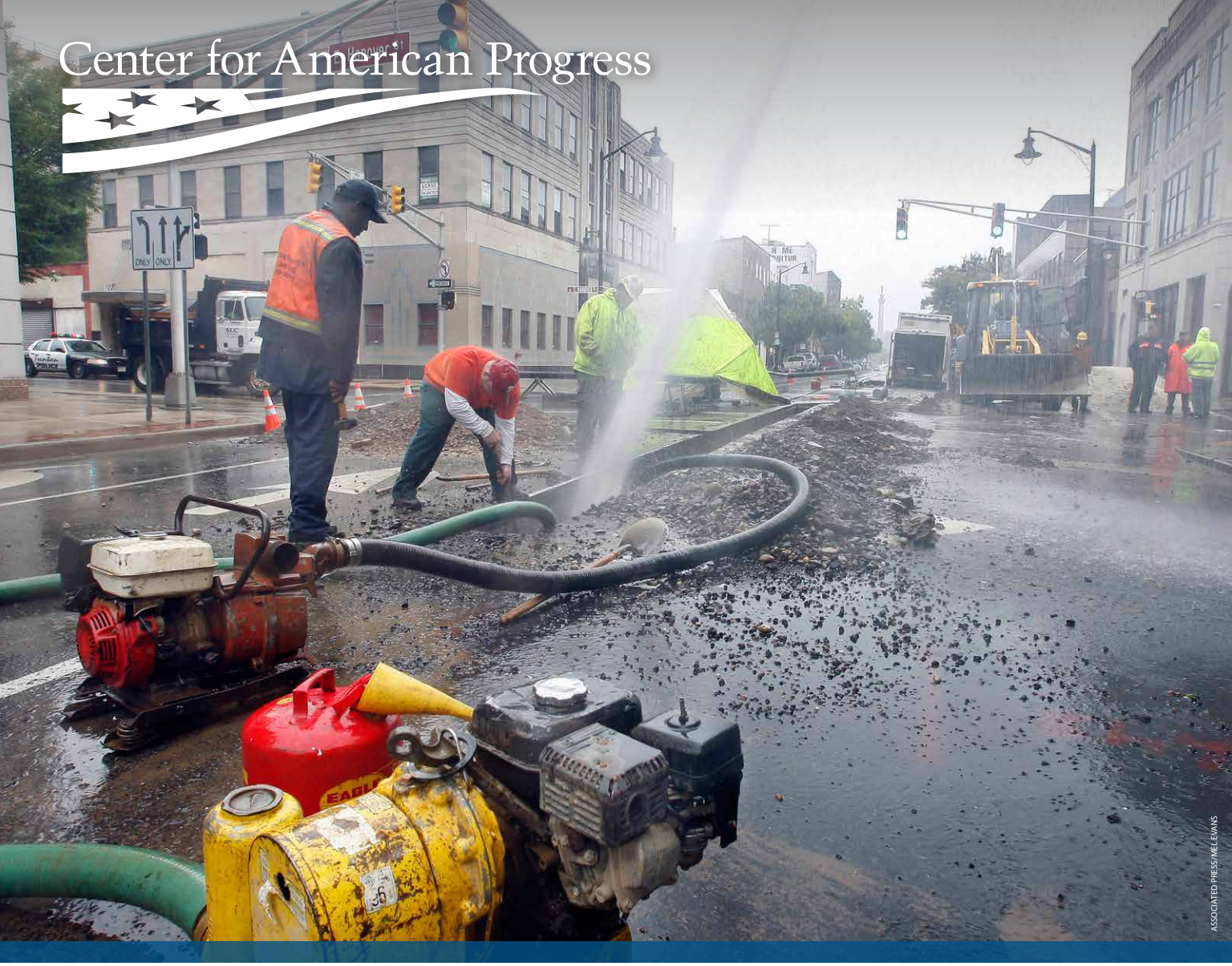
Center for American Progress



ASSOCIATED PRESS/MEL EVANS

How to Upgrade and Maintain Our Nation's Wastewater and Drinking-Water Infrastructure

Keith Miller, Kristina Costa, and Donna Cooper

October 2012

Center for American Progress

How to Upgrade and Maintain Our Nation's Wastewater and Drinking-Water Infrastructure

Keith Miller, Kristina Costa, and Donna Cooper

October 2012

Contents

Introduction and summary

Of all the elements of our public infrastructure, our water systems are the most essential for the daily lives of Americans. The average American family of four uses roughly 400 gallons of water a day for drinking, washing, cooking, cleaning, and more.[1] Businesses and industry throughout our nation also depend on clean water to keep their doors open and to manufacture thousands of goods we use or export every day. Indeed, commercial and institutional water-use amounts to roughly 17 percent of the total fresh water used in the United States.[2] To put these figures in context, producing a single slice of bread requires some 10 gallons of water; producing a gallon of milk requires 1,000 gallons of water; and manufacturing a car uses more than 39,000 gallons of water.[3]

But despite how critical clean drinking-water and sanitation systems are to both the U.S. economy and to public health, many of our drinking-water and clean-water (also called wastewater) systems have been allowed to fall into a state of disrepair. Due to decades of insufficient or misdirected investment, a significant portion of water distribution and sewer systems are reaching or have already reached the end of their intended operational life and are beginning to fail. Every year thousands of aging water pipes burst, costing millions of dollars in repairs and economic losses, while outdated wastewater systems dump billions of gallons of untreated sewage into our rivers, lakes, and streams. These all-too-commonplace incidents endanger both the environment and public health, while also undermining economic growth.

These problems persist throughout the country, with residents in almost every major city feeling the effects. In Baltimore aging pipes now burst approximately 1,000 times per year, and every day an incredible 20 percent of the water drawn from nearby reservoirs is simply lost in transmission before ever making it to homes and businesses.[4] In Houston an estimated 40 percent of the city's water pipes have already reached the end of their intended operational lives, and last summer's heat wave and drought conditions caused the city's aging water system to sprout an overwhelming 11,000 leaks, resulting in a quarter of the city's water being lost or unaccounted for in September and October 2011.[5] Meanwhile, the

dilapidated sewer system that serves Miami was recently found to have ruptured some 65 times in just the past two years, discharging more than 47 million gallons of untreated sewage into waterways and streets.[6]

Federal assistance—in the form of grants to drinking-water and clean-water state revolving loan funds—certainly helps many communities across our country finance thousands of projects that might not have been completed otherwise. But this source of funding alone will not be sufficient to meet projected needs and may become less so, given the proposed 36 percent budget cut in fiscal year 2013 for federal grants to state revolving loan funds for drinking water and wastewater recently approved by the House Appropriations Subcommittee on Interior, Environment and Related Agencies. To address America's deteriorating drinking-water and wastewater systems, significant additional public and private investment will be required, along with the political will to put in place reforms that make better use of the money already being invested.

In this report, we will detail the current state of our water infrastructure problems, explain the authority structure for these systems, and argue why projected funding levels are insufficient. We then propose commonsense reforms to help address the systems' failures, including:

- Immediately increasing allocations to state revolving loan funds
- Encouraging the funds to adopt smarter investment strategies to stretch every dollar further
- Promoting the adoption of more energy-efficient technologies and practices at drinking-water and wastewater facilities
- Pushing for lower-cost solutions for water-quality and treatment challenges

If these policies are adopted and supported with sufficient political will at the local, state, and federal levels, we could make significant progress toward ensuring that America's water systems are brought into a state of repair befitting of the world's largest economy.

Drinking water

Before arriving at the tap, drinking water first makes a long journey through thousands of miles of infrastructure inconspicuously tucked under streets, sidewalks, and homes. Without this system, modern society as we know it would be impossible. Across our country, nearly 153,000 drinking-water systems collect billions of gallons of source water daily from rivers, lakes, streams, and reservoirs; remove pollutants; and distribute safe water for human consumption.[7] More than 90 percent of Americans rely on public water systems for their drinking water, and this figure has been steadily rising for decades, as people relocate to urban centers and surrounding suburbs and as water systems expand to serve rural customers.[8]

Nearly one-third of these systems are categorized as "community water systems," meaning they serve the same population all year round. These community water systems serve just less than 300 million people, including nearly all of those living in the nation's largest metropolitan areas.[9] Case in point: As of 2010 the largest 4,197 systems—just 8 percent of all community water systems—served more than 244 million residents, or roughly 82 percent of the population that year.[10] But it's also worth noting that the majority of community water systems are far smaller than the sprawling networks found in cities, and more than half serve fewer than 500 people.[1]

As of 2006 ownership of these community water systems was relatively evenly split: 50.6 percent were publicly owned, and 49.4 percent were privately owned.[12] These figures are somewhat misleading, however, as privately owned systems tend to be relatively small, while almost all of the largest systems are publicly held. Indeed, publicly owned systems delivered 91.4 percent of the total water delivered to customers by community water systems in 2006.[1]

Additionally, there is significant diversity among privately owned water systems, as only 22 percent are run as for-profit businesses, while 38 percent are nonprofit entities. The other roughly 40 percent of private systems are "ancillary systems," meaning their primary business is not water provision, though providing water is part of their operational purpose.[1]

The remaining roughly 101,000 public water systems are either nontransient noncommunity water systems or transient noncommunity water systems.[15] The former supplies water to at least 25 of the same people at least six months a year but not year round, and its customers typically include schools, hospitals, or factories. The latter provides water in places that people typically do not stay for long such as gas stations and campgrounds. While they provide water to a far smaller portion of the population than community water systems, these systems are nevertheless also extremely important when evaluating the health of America's water infrastructure.

Average water-use in homes relying on these systems has remained relatively stable since the 1980s due largely to improved water-use technologies, as well as efficiency and conservation efforts.[16] Nevertheless, demand continues to increase due to a steadily growing population. With the U.S. Census Bureau anticipating population growth of 35 percent by 2050, the strain on these water delivery systems will only escalate.[17] Above-average population growth in the nation's hot and arid regions—such as the Southwest, Rocky Mountains, and West Coast—will also increase demand at a higher rate than will growth elsewhere, as demand for outdoor water use in these areas is significantly higher.[1]

The United States will have no choice but to meet these challenges by significantly improving its drinking-water delivery infrastructure. But for a number of reasons, including diminishing federal funding and the sheer volume of infrastructure that will soon require replacement, this task will be far more difficult to achieve than it might seem.

Current status of our drinking-water infrastructure

Despite the immeasurable importance of clean drinking water for households, businesses, and industry, much of America's drinking-water infrastructure has been allowed to fall into an unacceptable state of disrepair. This threatens to not only seriously jeopardize public health but also to undermine economic growth. To make matters worse, as more regions contend with droughts and potential water shortages, studies indicate that as much as 20 percent to 25 percent of the treated water that enters the distribution system is lost due to leakage, resulting in an estimated 1.7 trillion gallons of water being wasted every single year.[19] To place this figure in perspective, the amount of water wasted annually amounts to roughly 4.5 times the amount of water New York City consumes in an entire year.[20]

In addition to being responsible for tremendous waste, drinking-water infrastructure failures also cause costly water disruptions, impede emergency response, and damage essential infrastructure.[21] Water-main breaks damage roadways, undermine buildings, and hinder fire-control efforts, while the loss of potable water can also instantaneously shut down businesses and manufacturers. Many of our vital industries—including the apparel, automobile, biotechnology, mining, and food-manufacturing industries—heavily rely on public water for their operations, and if water cannot be reliably provided in the future, many of these large employers may have to consider relocation.[22] Unfortunately, both the health of America's modern economy and of its citizens is increasingly dependent on a system of water-treatment facilities and underground pipes that are quite literally bursting at the seams.

The impaired state of our drinking-water infrastructure can be primarily attributed to a combination of age and neglect. Many of America's largest water delivery systems were constructed around the turn of the 20th century to support the country's rapid industrial development and urbanization. The average lifespan of the pipes installed during this period is approximately 120 years, meaning that thousands of miles of pipe in older cities such as New York and Boston—which were some of the first to install these systems in the late 1800s—have reached the end of their intended design life and are in desperate need of replacement.[2]

Compounding the challenge is the fact that the pipe systems installed in America's next major building boom—the years immediately following World War II—have an average lifespan of only 75 years.[24] This means that multiple generations of pipes are becoming obsolete at the same time, and that almost every region of the country needs to undertake major replacement and renovation operations. Testifying to this need are the approximately 240,000 water-main breaks that now occur every year across the country—roughly 27 per hour.[2]

The nation's capital provides an excellent example of a city in desperate need of renovation. The water distribution system in Washington, D.C., comprises 1,350 miles of water pipe, four pumping stations, five reservoirs, three water tanks, and 36,000 valves that together serve a population of approximately 600,000 residents and 16.6 million annual visitors.[26] But the median age of a water pipe in the city is 77 years, and significant portions of the city's distribution infrastructure date back to the late 1800s and very early 1900s.[27] As a result of the system's age and lack of adequate maintenance, the city now sees an average of 400 to 500 water-main breaks per year—or more than one every day.[2]

Approximately 240,000 water-main breaks that now occur every year across the country—roughly 27 per hour.

To the city's credit, it is replacing pipes roughly twice as fast as the average large American water system, but even that is far too slow. At the District's current rate of pipe replacement—11 miles per year—required replacements won't be completed for much more than 100 years, by which time replacements might have to begin all over again.[29] In the interim, the city will almost certainly pay millions of dollars for short-term repairs, not to mention the losses that will be suffered by local businesses and households.

Unfortunately, in Washington, D.C., and in most other parts of the country, maintaining and upgrading these systems has been largely ignored for decades. The result: a massive backlog of necessary repairs and replacements that simply cannot be postponed any longer but seems nearly impossible to complete.

Wastewater

Once water has been used in homes, businesses, or factories, it must then be cleaned, treated, and returned to lakes, rivers, and reservoirs. The treatment of wastewater and sewage is inseparable from the provision of safe drinking water not only because the systems operate side by side but also because they frequently originate and terminate in the same bodies of water.

As of 2008 there were approximately 14,780 wastewater-treatment facilities and 19,739 wastewater pipe systems in the United States responsible for the safe transport and treatment of used water.[30] That amounts to somewhere between 600,000 miles and 800,000 miles of sewer pipe, which served approximately 220 million Americans as of 2009.[31]

Current status of our wastewater infrastructure

Much like our drinking-water infrastructure, much of our nation's wastewater-treatment network is suffering the effects of aging, and a substantial portion has already reached the end of its useful life. Most of the nation's sewer pipe systems were installed in the years following World War II and are struggling to keep up with increasing sewage volumes, while receiving insufficient repairs and component replacements.[32] Many wastewater-treatment plants were updated in the 1970s to bring them into compliance with the requirements of the Clean Water Act, but unlike pipes, treatment-plant assets have typical service lives of only 15 years to 50 years, and many of these facilities are now in desperate need of additional upgrades—or even complete replacement.[3]

Insufficient policy attention has allowed these critical systems to deteriorate to an unacceptable state that now threatens not only to impose tremendous repair costs on communities nationwide but also to compromise the health of hundreds of delicate aquatic ecosystems and the public at large. Before 1950 it was common practice to construct water-management systems that directed wet weather

runoff into combined-sewer systems that also handled raw sewage and wastewater.[34] This practice has since been largely abandoned due to the propensity of such systems to discharge large volumes of untreated sewage when significant weather events such as snow melts overloaded them. But many such systems have yet to be replaced and are still in use today.

What's more, increasingly large volumes of wastewater produced by larger populations place additional strain on many of these systems. Every year there are nearly 75,000 such overflows in the United States, discharging approximately 900 billion gallons of untreated sewage into lakes, streams, and rivers.[35]

According to an analysis conducted by *The New York Times*, between 2006 and 2009 more than 9,400 sewage systems in the United States—including many in major cities—reported illegally dumping untreated or only partially treated human waste, chemicals, or other hazardous materials into nearby bodies of water.[36] This made public sewage systems the most frequent violators of the Clean Water Act during that period. As recently as 2011, Washington, D.C., was reported to have been releasing roughly 3 billion gallons of raw sewage into the Potomac River, the Anacostia River, and Rock Creek every year.[37] Such events not only contaminate surface water and pose serious health risks but also can shut down beaches and produce fish kills, all leading to significant economic consequences.[38] (see box)

Stormwater management

To prevent combined-sewer overflows, it is important not only to address sewer-system infrastructure needs but also to more effectively handle stormwater—the rainwater or melted snow that runs off of streets, roofs, lawns, or other sites.[39] Normally such water would simply be absorbed into the ground, where it would be naturally filtered and would help replenish aquifers or slowly make its way to rivers, lakes, and streams. But in developed areas, the installation of impervious surfaces such as concrete, asphalt, and roofs means that this water cannot be absorbed. Instead, city stormwater systems seek to collect runoff and remove it as soon as possible via pipe systems. These pipe systems are frequently overwhelmed during storm events, leading to the discharge of millions of gallons of untreated sewage into local waterways.[40]

Besides contaminating nearby water sources, improperly managed stormwater can cause infrastructure damage, habitat destruction, stream-bank erosion, and downstream flooding.[41] To address these problems, cities have usually sought to simply expand pipe and cistern systems to accommodate increasing water volumes but are now also looking toward increasingly innovative "green" infrastructure solutions. Green solutions to stormwater removal include the installation of rain gardens, porous pavements, and green roofs and cisterns that are designed to imitate natural hydrologic functions and capture water that would otherwise flood into stormwater drains.

Continued on following page

Such systems not only hold the potential to reduce sewer overflows but could also produce substantial additional economic and environmental benefits, including improved water quality, cleaner air, more efficient carbon sequestration, reduced urban temperatures, reduced energy demand, and potential cost savings due to lower capital costs when compared to building large stormwater capture and conveyance systems.[42]

Some cities, led by Philadelphia, have already begun to implement such systems. Launched in 2010 the Philadelphia Water Department's 25-year Green City, Clean Waters plan aims to reduce stormwater runoff that contributes to up to 85 combined-sewer overflow events per year by installing green infrastructure components such as those listed above.[43] As of June 2012 the $2 billion initiative undertaken in partnership with the U.S. Environmental Protection Agency had already removed 10,000 square feet of impervious pavment, completed 16 green school projects, helped initiate 300 greening projects at local businesses, and completed 35 green street blocks with the end-of-year total expected to reach 215.[44] Included in these projects was the installation of rain gardens, green rooftops, and porous paving, as well as the deployment of rain barrels and stormwater planters. Other large cities such as New York are already following suit due to these innovative systems' potential effects on the economy, public health, and environmental quality.[45]

Safely managing wastewater and sewage should not be a challenge for the world's wealthiest nation, but the United States has found itself struggling to keep up with basic repairs, let alone implement the more substantial upgrades required to bring its wastewater management systems in line with modern engineering and health standards. Much progress has certainly been made since the landmark passage of Clean Water Act in 1972, but due to aging, neglect, and increased demand, much work still needs to be done.

Who is responsible for drinking-water and wastewater system maintenance?

Localities and states bear responsibility for almost all of the operation and maintenance costs and for the vast majority of repair, replacement, and expansion costs of drinking-water and wastewater systems. The state and local share of investment in drinking-water and wastewater systems now comprises roughly 95 percent.[46] Unfortunately, those in charge allocate a significant percentage of the spending toward expansion of services to new customers rather than the replacement or repair of older systems. While this expansion has brought clean water to new residential developments, this preference for new construction over repair does little to address the health and economic needs of the majority of communities reliant upon existing infrastructure.[47]

Policymakers have relatively few options for funding necessary improvements in drinking-water and wastewater infrastructure. Some states have dedicated general revenues for water system improvements, but those measures have dwindled due to the recession's impact on state revenues. Typically, however, most water system improvements have to be funded by water customers. Some water systems have attempted to increase rates charged to water users, with the goal of aligning rates with the true cost of delivering water, including covering the costs of capital improvement. But these rate changes have often proven extremely politically contentious and difficult to pass.

Additionally, rate-increase efforts often fail because many residents of the communities most in need of system upgrades are those often least able to afford higher rates, and relying exclusively on raising rates to fund local repairs could result in inequitable investment in treatment and distribution networks.[48] Besides lacking adequate revenue or financing, however, many smaller water systems also face additional challenges, including a shortage of properly trained system operators and difficulty understanding new and existing regulations.[49]

The federal government does provide assistance to help states and localities overcome these challenges. First, the federal government exempts state and local municipal bonds from federal taxes, reducing the amount of interest they must pay out on municipal bonds to effectively lower the costs of raising capital for infrastructure projects. The Environmental Protection Agency also has a number of initiatives aimed at helping states and localities understand water-quality regulations and at promoting the development and adoption of new technologies and best practices.

The most substantial and substantive source of federal aid, however, is delivered in the form of grants issued by the Environmental Protection Agency to drinking-water state revolving loan funds and clean-water state revolving loan funds. All 50 states and Puerto Rico have such loan funds to support drinking-water and wastewater infrastructure investments.[50]

These loan funds are capitalized with a combination of state general funds or dedicated funds identified by state legislatures and Environmental Protection Agency grants, which are then used to provide below-market-rate loans to localities in need of financial assistance. The localities then pay back the loans with interest, and the money is recycled back into the state revolving loan fund. This allows the same money to be put toward multiple generations of projects and ensures funds will always be available in the future, assuming localities are able to pay back borrowed funds.

The Environmental Protection Agency's grant programs for clean-water and drinking-water state revolving loan funds were created in 1987 and 1996, respectively, via amendments to the Clean Water Act. Through FY 2012 the federal government had appropriated nearly $36 billion to clean-water state revolving loan funds and $16.4 billion to drinking-water state revolving loan funds.[51] These federal funds helped state authorities finance more than $111 billion worth of water infrastructure projects via 39,000 separate loan agreements through the end of FY 2011.[52]

Through FY 2012 the federal government had appropriated nearly $36 billion to clean-water state revolving loan funds and $16.4 billion to drinking-water state revolving loan funds.

For every federal dollar the Environmental Protection Agency allocated via drinking-water state revolving loan funds, roughly $1.77 was allotted by states to projects.[53] This ratio was even better for funds allocated via the clean-water funds as of FY 2009, the last year for which data are available, as every federal dollar corresponded to $2.53 loaned out at the state level.[54] This positive multiplier effect is enabled by states matching grant dollars, utilizing leveraging strategies to increase pools of loanable funds, and taking advantage of interest earned on previous loans and additional prudent financial investments.[55]

Given that the Environmental Protection Agency's drinking-water and clean-water state revolving loan fund programs were created at different times, there are some differences between the two. First, the drinking-water program allows for federally provided funds to be used to extend loans to private water systems, as well as public ones, while clean-water funds can only be used for public projects. Second, up to 30 percent of drinking-water grant funds can be used to provide alternative forms of financial assistance such as principal forgiveness or negative-interest-rate loans to disadvantaged communities, and a minimum of 15 percent of funds must go to smaller systems serving fewer than 10,000 persons.[56] In contrast, the clean-water program does not have such particular requirements, although it should be noted that as of 2009 roughly 23 percent of all clean-water state revolving funds were already going to communities with fewer than 10,000 persons.

Both the drinking-water and clean-water programs, however, are prohibited from providing funds for supporting projects with the primary goal of expanding services to accommodate population growth or acquiring new water rights, as such spending could undermine efforts to rehabilitate existing systems. This federal assistance, as well as gradually increasing spending at the state and local levels, has resulted in total public spending on drinking-water and clean-water infrastructure increasing from $12.5 billion in 1956 to $38.9 billion in 2007 (both figures in constant 2009 dollars).[57]

Although most of this money for capital spending comes from current revenue and other sources, the drinking-water and clean-water state revolving loan fund programs have become an increasingly important source of funds. From 2000 to 2006, approximately 19 percent of publicly owned drinking water systems relied on drinking-water loans to finance at least a portion of their capital improvements, which is up from 10 percent in 2000. On average in that time period, 13 percent of public drinking-water systems' capital expenditures were funded by drinking-water loans, up from 7 percent in 2000.[58]

Yet even with the expansion in spending, capital needs have increased at an even faster rate due to system deterioration, much-needed new health and safety regulations, and an ever-growing population. Federal, state, and local spending will all have to increase and be allocated with greater efficiency in order to avoid letting America's drinking-water and wastewater networks fall further into disrepair.

Projected investment needs

The Environmental Protection Agency is tasked with periodically assessing the nation's drinking-water and wastewater capital needs, both to provide policymakers with valuable information and to enable the agency's allotment of grant funding. The most recent capital-needs surveys for drinking-water and wastewater systems—released in 2009 and 2010, respectively—set this need at just less than $635 billion over 20 years, or roughly $31.6 billion per year.[59]

Drinking-water systems

The drinking-water system report released by the Environmental Protection Agency estimated total drinking-water system needs at $334.8 billion for the period from 2007 through 2026.[60] These funds are required to help systems ensure the provision of safe water and comply with existing water-quality regulations by constructing or replacing tens of thousands of miles of pipe, thousands of treatment plants, and billions of gallons worth of storage capacity. The agency, however, reported that only 16 percent of these capital needs were attributable to Safe Drinking Water Act regulations, while 84 percent were required for nonregulatory improvements.[61]

The exact breakdown of capital needs by subcategory were:

- $200.8 billion for transmission and distribution
- $75.1 billion for treatment
- $36.9 billion for storage
- $19.8 billion for water source needs
- $2.3 billion for other repairs or improvements[62]

Wastewater systems

The Environmental Protection Agency estimated that a total of $298 billion would be required for wastewater capital needs for the 20-year period beginning in 2008 and going through 2027.[63] Among other requirements, these funds are needed to retrofit treatment plants, replace old pipes and install new ones, correct combined-sewer overflows, and bring lagging systems into compliance with more protective water-quality standards.[64]

The exact breakdown of capital needs by subcategory were:

- $105.2 billion for treatment
- $82.6 billion for pipe repair and new pipes
- $63.6 billion for combined-sewer overflow correction
- $42.3 billion for stormwater management
- $4.4 billion for recycled-water distribution[65]

Why current levels of funding are inadequate

Given that total public spending on drinking-water and wastewater systems in 2007 amounted to $38.9 billion, and that the average annual spending over the previous decade stood at $37.4 billion, one might conclude that current spending is sufficient to cover the Environmental Protection Agency's estimated capital needs of $31.6 billion per year.[66] But this is not the case, largely because of how the agency calculates its estimates and how allotted funds are actually spent.

First, by its own admission, the agency's needs estimates are generally conservatively biased and do not truly reflect the sum of all required investments.[67] This is because the surveys do not account for infrastructure needs that are not eligible for funding via the drinking-water and clean-water state revolving loan fund grant programs but are nevertheless essential for protecting America's water resources. Consequently, the Environmental Protection Agency's total figure estimate for drinking-water systems does not include raw-water reservoir treatment and protection needs, dam-repair costs, or source-water protection requirements.[68] Neither survey explicitly takes into account the needed expansion to accommodate population growth, nor do they include figures pertaining to the capital needs of privately owned and operated systems.

Finally, these totals do not account for the financing costs of borrowing funds to pay for improvements, and they do not consider the needs of military bases or other federal facilities.[69] Total drinking-water and wastewater capital needs are therefore almost certainly significantly higher than $31.6 billion per year, as this figure portrays only a portion America's greater water infrastructure needs.

Moreover, spending by water utilities is often not directed toward the kinds of improvements included in the agency's estimates but is instead being funneled into projects geared primarily toward accommodating population growth. While such investments are also necessary, if sufficient upgrades to existing infrastructure are not adequately financed, the health and economic productivity of millions more Americans could be put at risk.

The American Society for Civil Engineers found in September 2012 that even if current spending levels were currently sufficient, they would not remain so if current trends in federal appropriations continue. Just this summer the House Appropriations Committee voted to cut appropriations to the drinking-water grant program to $829 million and appropriations to the clean-water fund to only $689 million.[70] These cuts would represent a 36 percent reduction in funding from FY 2012 levels and would fall well below the modest $2 billion requested in the president's proposed FY 2013 budget.[71]

Policy recommendations

In order to bring America's water infrastructure up to date with modern safety and efficiency standards, significant changes will have to be made both to the levels of funding being provided and to the way these funds are invested. This will certainly be a challenge, but with a relatively modest increase in annual spending and the adoption of some commonsense reforms, we can begin making significant progress providing Americans with the drinking-water and wastewater systems they expect and deserve.

Here are the five key steps that Congress and the executive branch need to take as soon as possible:

- Increase annual grant appropriations to state revolving loan funds by $2 billion for the next 20 years
- Transition all remaining nonleveraged drinking-water and clean-water state revolving loan funds into leveraged funds
- Encourage states to adopt superior investment strategies
- Promote the adoption of more energy-efficient technologies and practices at drinking-water and wastewater facilities
- Push for lower-cost solutions for water-quality and treatment challenges

Let's now examine each of these recommendations in more detail.

Increase annual grant appropriations to state revolving loan funds by $2 billion

Without additional funding, there is little that can be done to address America's pressing water infrastructure needs. Federal grants such as those provided by the Environmental Protection Agency's drinking-water and clean-water state revolving loan fund programs enable states to undertake critical drinking-water and wastewater projects, while shielding communities from excessive rate hikes that

many cannot afford. Increasing annual appropriations to these two state revolving loan funds by $2 billion will allow states to finance thousands of repair and renovation projects that have been delayed for far too long.

Furthermore, increasing appropriations will pump money into the construction and manufacturing sectors, which were among those hit hardest by the recent recession. With states currently required to match 20 percent of allotted funds, these additional appropriations would increase total funds available for project financing by at least $2.4 billion annually.

Such additional spending is not only desperately needed but also has been demonstrated to provide significant tangible returns on investment. We need look no further than the results of the increased spending made by possible by the American Recovery and Reinvestment Act of 2009. Drinking-water and wastewater programs were awarded a combined $6 billion—$2 billion to the drinking-water program and $4 billion to the clean-water program—which was allocated to states in FY 2009 and FY 2010.[72] The Environmental Protection Agency estimates the additional investments created approximately 65,000 jobs nationwide or approximately 12,000 jobs per billion dollars invested.[73]

The Recovery Act experience demonstrates that an additional allocation of $2 billion to drinking-water and clean-water state revolving funds could yield immediate and significant economic returns on top of the completion of badly needed infrastructure renovations.

Clearly, water improvements offer lasting impacts, as well. As of 2009 the Environmental Protection Agency itself estimated that clean-water funds alone had improved access to clean drinking water for more than 33 million people, improved water that supports fish and shellfish consumption for 43 million people, and improved access to water for recreational purposes for some 107 million people.[74]

As of 2009 the Environmental Protection Agency itself estimated that clean-water funds alone had improved access to clean drinking water for more than 33 million people.

Transition all remaining nonleveraged drinking-water and clean-water state revolving funds into leveraged funds

Utilizing leveraged models enables states to significantly increase their pools of loanable funds available to support local water-infrastructure improvement projects. In this context, "leveraging" refers to the practice of state revolving loan funds issuing bonds and then using the funds from this issuance to finance projects for which

there may not have initially been sufficient capital. By raising these additional funds, states can finance the completion of significantly more projects than they would have been able to using only the federal grant monies and allotted state funds.

While this does mean that states have to charge high-enough interest rates on the loans they issue to recoup the interest they must subsequently pay back to bond buyers, these rates are still market-level, and, as previously noted, the practice enables the funding of significantly more projects. Yet despite the advantages of utilizing leveraging, as of 2011 some 27 clean-water state revolving loan funds and 20 drinking-water state revolving loan funds only employed direct-loan models and issued no debt instruments to raise additional funds.[75]

The remainder of states, however, adopted some form of leveraging model, and through FY 2009 states using leveraged clean-water state revolving loan funds alone were able to make an additional $24 billion available for wastewater project financing.[76] Indeed, states have traditionally seen a two-fold to four-fold increase in funding capacity when transitioning to leveraged models. This has allowed states to undertake infrastructure projects valued at well above revolving loan funds' initial grant allocations.[77]

The Environmental Protection Agency should work to increase its technical assistance efforts to help the remaining nonleveraged drinking-water and clean-water state funds make the transition, thereby enabling billions of dollars more in investment for America's water-infrastructure system. Another way to accelerate the use of the leveraging model would be to link increases in federal allocations to the adoption of leveraging practices by state loan funds.

Encourage states to adopt superior investment strategies

Policymakers can further increase drinking-water and clean-water state loan capacities by encouraging states to invest revolving loan funds prudently when they are not serving to finance projects, instead of sitting on the money. Many of these state entities currently invest unassigned grant funds and repaid loan funds in low-interest-bearing accounts and instruments that often yield a return of less than 1 percent a year, which is barely enough to keep pace with inflation.

If states were to adopt more balanced investment strategies such as those employed by pension funds they could receive significantly higher rates of return

on their investments, while still keeping risk within acceptable boundaries. New York state's revolving loan fund already employs such a strategy, and its investment portfolio consists primarily of highly rated taxable municipal securities, all of which are high-yield investments. These practices have already enabled the state to increase its loan capacity by an impressive 25 percent.

We estimate that if these changes were adopted by all state funds in conjunction with transitioning remaining direct-loan drinking-water and clean-water state funds to leveraged models, total funds available for project financing could increase by $300 million per year.[78] To help expedite adoption of these new strategies, the Environmental Protection Agency should offer clear and detailed guidance—both on the steps required to successfully manage these transitions and on the acceptable parameters for responsible financial stewardship of state revolving loan funds.

Promote the adoption of more energy efficient technologies and practices at drinking-water and wastewater facilities

Reducing the cost of pumping and treating water is another way to sidestep the need for water-rate increases, while also increasing the efficiency of water facilities. Since energy costs account for as much as one-third of the costs of pumping, treating, delivering, and collecting water—to the tune of $4 billion a year nationally—reducing the amount of energy used by water utilities can have a substantial impact on their bottom lines and can free up funds needed for other capital improvements.[79] Rising local electricity costs make it even more important for water utilities to reduce their energy usage. Reducing energy costs is especially imperative for local governments, where the energy used solely to treat drinking water and wastewater can account for up to 35 percent of all municipal energy use.[80]

Many large and midsize water-treatment facilities can find a ready source of energy in the gases produced by their treatment processes. These facilities are increasingly looking to combined heat-and-power systems that use waste gases to produce energy that can power their facilities, as well as be made for sale.[81] Utilizing solar or wind power can also help water utilities reduce costs over the long term. The challenge is that shifting to such alternative forms of energy or installing energy-conservation equipment requires upfront capital. More often than not, shortages of capital at the state and local levels mean that projects to reduce energy costs are always ranked second or third on the list of planned capital improvements—behind needed system upgrades or major repairs.

Federal assistance can help advance these efforts at a significantly faster pace. The Environmental Protection Agency is already encouraging water companies and authorities to undertake energy assessments to identify the best and most cost-effective energy-conservation strategies. The U.S. Department of Energy is also assisting in this effort with its Energy Star program, which offers in-depth technical assistance for water companies and authority professionals seeking to reduce energy costs.

To improve the effectiveness of these efforts, the Center for American Progress recommends that the Environmental Protection Agency work with state revolving loan funds to demonstrate the ways to use revolving loan fund resources as a two-tiered investment strategy to reduce energy costs. First, use a small portion of the revolving loan portfolio's assets from repaid loans to make modest grants to local water systems to conduct state-of-the-art energy assessments. The results of these assessments could then be used to rank projects based on cost-effectiveness and net benefits, and those that rank highly could be given preference for low-interest or forgivable loans from the revolving loan fund.

The Department of Energy's network of state energy offices can also provide invaluable assistance and guidance to state revolving loan fund administrators on how to structure grants and loans for these purposes. Strengthening the collaboration between the Department of Energy and the Environmental Protection Agency with the goal of bringing state energy offices to the table can produce a substantial payoff by mobilizing critical state expertise to help water systems make headway in reducing their energy costs.

Strengthening the collaboration between the Department of Energy and the Environmental Protection Agency with the goal of bringing state energy offices to the table can produce a substantial payoff.

The Center for American Progress also calls for a national renewable energy portfolio standard.[82] Measures to expand state or federal portfolio standards that require electric and gas utilities to achieve energy-conservation targets can accelerate energy-reduction projects in the water sector. For instance, the energy-conservation requirements in the Pennsylvania Alternative Energy Portfolio Standard brought the state's largest electric utility to the table to finance a portion of the cost of energy efficiency upgrades for a large water-treatment authority in its service area. In doing so, the utility was assisted in meeting its state mandates, and local customers will bear less of an energy burden in their wastewater-treatment payments.

Finally, while federal funds for the state revolving loan funds should be increased, the Center for American Progress recommends creating a special set of these monies to incentivize smart energy-reduction capital improvements at both drinking-water and waste-treatment facilities.

Push for lower cost solutions for water quality and treatment challenges

States and localities often use massive construction projects to solve water-quality and treatment challenges that, in some cases, could be avoided or resolved with lower-cost solutions. Philadelphia's Green City, Clean Water initiative is a great example of how to solve a stormwater problem without incurring massive new public debt. Their stormwater-management plan relies on green technology solutions coupled with low-impact development zoning requirements. As a result, Philadelphia is spending $2 billion for small grants to shift existing impervious parcels to water-retaining or pervious surfaces, but has avoided the construction of a new $10 billion tunnel under the Delaware River.

In Florida, homeowners in Tampa are given the option of cutting their water bills if they opt to use reclaimed or "grey" water for watering gardens or other uses where potable water is not essential. Providing access to both potable and nonpotable water at the household and industry level can decrease the cost of treatment and demand for treated water, as well as reduce consumer costs.

The Environmental Protection Agency and the state revolving loan fund programs can accelerate the adoption of more cost-effective water-quality and treatment options by offering loan program incentives to water systems that can adopt these practices. Such incentives might be lower-interest rates on the loans, partial grants, or longer loan-repayment periods. While it may seem counterintuitive to offer incentives to lower-cost projects, doing so can cause more water system operators and engineers to replicate the many lower-cost best practices that have already been tested across the nation.

Conclusion

Every day tens of millions of Americans rely on our nation's water infrastructure to provide them with clean drinking water and to sanitarily remove their household waste. Thousands of businesses in every state count on water distribution networks to keep their doors open, and industries across the nation depend on reliable water access for their core operations. Despite this, we have largely come to take access to clean water for granted—perhaps because it is so intimately connected to almost every facet of modern life that it is nearly impossible for us to imagine a world without it. If America's treatment plants, water pipes, and sewer systems are allowed to continue to descend into a further state of disrepair, however, access to clean water could become far less reliable, threatening both public health and economic growth.

One would not think that in the world's wealthiest nation, millions of gallons of untreated sewage would be allowed to pour into streams, rivers, and lakes whenever it rained too hard, or that citizens would have to give serious consideration to whether or not the water coming from their taps was safe for their children's consumption. While tremendous progress has been made since the passage of the Clean Water Act, decades of insufficient or misdirected public investment, coupled with continuous population growth and a lack of political will, have left the United States struggling to make basic repairs to our drinking-water and wastewater systems, let alone undertake the upgrades necessary to accommodate anticipated growth. With policymakers now cutting federal assistance to struggling states and localities, the situation is likely to get worse absent serious and immediate changes in policy.

To avoid such an outcome, the Center for American Progress recommends increasing federal assistance to drinking-water and clean-water state revolving loan funds and encouraging these funds to adopt financing and investment strategies that maximize their loan capacity. By increasing federal grants by a modest $2 billion annually over the next 20 years, encouraging all state revolving loan funds to adopt leveraging practices, and helping fund managers more wisely invest

available funds, the federal government can enable billions in additional investment every year while ensuring the greatest possible return on its own investment. These are commonsense reforms that will enable states and localities to continue the critical tasks of repairing and modernizing the drinking-water and wastewater systems upon which their economies and public health totally rely.

If the United States is to return to the days of robust economic growth and compete in an increasingly competitive global marketplace, we can no longer ignore the condition of our most essential infrastructure. Americans deserve a water infrastructure system that meets modern safety standards, protects the environment, and enables continued prosperity. The costs of inaction are simply too high.

About the authors

Donna Cooper is a Senior Fellow with the Economic Policy team at the Center for American Progress. Formerly the deputy mayor for policy for the city of Philadelphia and secretary of policy and planning for the Commonwealth of Pennsylvania, Cooper brings 20 years of experience managing large-scale programs to assist struggling families exit poverty. Her experience ranges from homeless jobs programs to holistic training and support programs aimed at single mothers. She has written extensively on infrastructure at CAP.

Kristina Costa is a Research Assistant with the Economic Policy team at the Center for American Progress. She has written on regulatory policy, government reform, innovation, education, and infrastructure, among other areas. Costa received her bachelor's degree in political philosophy from Wellesley College. Prior to joining the Center, she worked as a legislative correspondent for Rep. Carol Shea-Porter (D-NH).

Keith Miller is an Intern with the Economic Policy team at the Center for American Progress and a student at the Georgetown Public Policy Institute.

Acknowledgements

We are grateful for the generous support of Bernard Schwartz and the Rockefeller Foundation.

Endnotes

1 "Water Sense: Water Use Today," available at http://www.epa.gov/WaterSense/our_water/water_use_today.html (last accessed September 2012).

2 "Water Sense: Commercial," available at http://www.epa.gov/WaterSense/commercial/index.html (last accessed September 2012).

3 "Water Trivia Facts," available at http://water.epa.gov/learn/kids/drinkingwater/water_trivia_facts.cfm#_edn9 (last accessed September 2012).

4 Timothy Wheeler, "Decaying water system needs makeover," *The Baltimore Sun*, July 21, 2012, available at http://articles.baltimoresun.com/2012-07-21/features/bs-gr-water-system-aging-20120720_1_water-system-underground-pipes-water-rates/2.

5 Cindy Horswell, "Houston's water woes connected to old pipes," *The Houston Chronicle*, June 17, 2012, available at http://www.chron.com/news/houston-texas/article/Last-year-s-drought-show-need-for-upgrade-to-3640704.php.

6 Charles Rabin and Curtis Morgan, "Miami-Dade's leaky pipes: More than 47 million gallons of waste spilled in past two years," *The Miami Herald,* June 14, 2012, available at http://www.miamiherald.com/2012/05/14/v-fullstory/2799249/miami-dades-leaky-pipes-more-than.html.

7 Environmental Protection Agency, *Fiscal Year 2010 Drinking Water and Ground Water Statistics* (2011), available at http://water.epa.gov/scitech/datait/databases/drink/sdwisfed/upload/new_Fiscal-Year-2010-Drinking-Water-and-Ground-Water-Statistics-Report-Feb-2012.pdf.

8 Authors calculation based on data, Environmental Protection Agency, *Fiscal Year 2010 Drinking Water and Ground Water Statistics*; "U.S. & World Population Clocks," available at http://www.census.gov/main/www/popclock.html (last accessed October 2012); American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure" (2011), available at http://www.asce.org/uploadedFiles/Infrastructure/Failure_to_Act/ASCE%20WATER%20REPORT%20FINAL.pdf.

9 Environmental Protection Agency, *Fiscal Year 2010 Drinking Water and Ground Water Statistics*.

10 Ibid.

11 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

12 Environmental Protection Agency, *2006 Community Water System Survey* (2009), available at http://water.epa.gov/infrastructure/drinkingwater/pws/upload/cwssreportvolumeI2006.pdf.

13 Ibid.

14 Ibid.

15 Environmental Protection Agency, *Fiscal Year 2010 Drinking Water and Ground Water Statistics*.

16 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

17 James A. Hanlon, "Our Nation's Water Infrastructure: Challenges and Opportunities," Testimony before the Subcommittee on Water and Wildlife, Committee on Environment and Public Works, December 13, 2011, available at http://www.hsdl.org/?view&did=696447.

18 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

19 Van L. Richey, "Our Nation's Water Infrastructure: Challenges and Opportunities," Testimony before the Subcommittee on Water and Wildlife, Committee on Environment and Public Works, December 13, 2011, available at http://www.hsdl.org/?view&did=696447; Ashley Halsey III, "Billions needed to upgrade America's leaky water infrastructure," *Washington Post*, January 2, 2012, available at http://www.washingtonpost.com/local/billions-needed-to-upgrade-americas-leaky-water-infrastructure/2011/12/22/gIQAdsE0WP_story.html.

20 Authors calculation based on data, "History of Drought and Water Consumption" available at http://www.nyc.gov/html/dep/html/drinking_water/droughthist.shtml (last accessed September 2012).

21 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

22 Ibid.

23 Ibid.

24 Ibid.

25 "Aging Water Infrastructure (AWI) Research – Basic Information," available at http://www.epa.gov/awi/basic1.html (last accessed September 2012).

26 District of Columbia Water and Sewage Authority, *2011 Annual Report* (2012), available at http://www.dcwater.com/news/publications/DCWater2011annual.pdf.

27 Ibid; Halsey, "Billions needed to upgrade America's leaky water infrastructure."

28 "Life Cycle of a water main break," available at http://www.dcwater.com/wastewater/watermain_break.cfm (last accessed September 2012).

29 Halsey, "Billions needed to upgrade America's leaky water infrastructure."

30 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

31 Government Accountability Office, *Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund* (2009), available at http://www.gao.gov/new.items/d09657.pdf.

32 Ibid.

33 Ibid; Claudia Copeland and Mary Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues" (Washington: Congressional Research Service, 2010), available at http://www.fas.org/sgp/crs/homesec/RL31116.pdf.

34 American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

35 "Aging Water Infrastructure (AWI) Research – Basic Information"; Halsey, "Billions needed to upgrade America's leaky water infrastructure."

36 Charles Duhigg, "As Sewers Fill, Waste Poisons Waterways," *New York Times*, November 22, 2009, available at http://www.nytimes.com/2009/11/23/us/23sewer.html?_r=2.

37 Halsey, "Billions needed to upgrade America's leaky water infrastructure."

38 Government Accountability Office, *Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund*.

39 "Stormwater Management," available at http://www.epa.gov/oaintrnt/stormwater/index.htm (last accessed September 2012).

40 Ibid.

41 Ibid.

42 Hanlon, "Our Nation's Water Infrastructure: Challenges and Opportunities."

43 Paul McRandle, "Philadelphia Cleans Up Storm Water With Innovative Program," *National Geographic*, June 6, 2012, available at http://news.nationalgeographic.com/news/2012/06/120606/philadelphia-storm-water-runoff/.

44 Ibid.

45 Mireya Navarro, "A Greener Strategy for New York's Runaway Sewage," *New York Times*, March 13, 2012, available at http://green.blogs.nytimes.com/2012/03/13/a-greener-strategy-on-new-yorks-runaway-sewage/.

46 Government Accountability Office, *Clean Water Infrastructure: A Variety of Issues Need to Be Considered When Designing a Clean Water Trust Fund*; American Society of Civil Engineers, "Failure to Act: The Economic Impact of Current Investment Trends in Water and Wastewater Treatment Infrastructure."

47 Donna Cooper, "Meeting the Infrastructure Imperative" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/wp-content/uploads/issues/2012/02/pdf/infrastructure.pdf.

48 Ibid.

49 Environmental Protection Agency, *National Water Program Guidance* (2012), available at http://www.epa.gov/planandbudget/annualplan/FY13OWFinalNPMGuidance.pdf.

50 Environmental Protection Agency, *Clean Water State Revolving Fund Programs: 2009 Annual Report* (2010), available at http://water.epa.gov/grants_funding/cwsrf/upload/2009_CWSRF_AR.pdf.

51 Claudia Copeland, "Water Infrastructure Financing: History of EPA Appropriations" (Washington: Congressional Research Service, 2012), available at http://www.fas.org/sgp/crs/misc/96-647.pdf.

52 Hanlon, "Our Nation's Water Infrastructure: Challenges and Opportunities."

53 Environmental Protection Agency, *National Water Program Guidance*.

54 Environmental Protection Agency, *Clean Water State Revolving Fund Programs: 2009 Annual Report*.

55 Environmental Protection Agency, *National Water Program Guidance*.

56 Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues."

57 Congressional Budget Office, "Public Spending on Transportation and Water Infrastructure" (2010), available at http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/119xx/doc11940/11-17-infrastructure.pdf.

58 Environmental Protection Agency, *2006 Community Water System Survey*.

59 Hanlon, "Our Nation's Water Infrastructure: Challenges and Opportunities."

60 Environmental Protection Agency, *Drinking Water Infrastructure Need Survey and Assessment* (2009), available at http://water.epa.gov/infrastructure/drinkingwater/dwns/upload/2009_03_26_needssurvey_2007_report_needssurvey_2007.pdf.

61 Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues."

62 Environmental Protection Agency, *Drinking Water Infrastructure Need Survey and Assessment*.

63 Environmental Protection Agency, *Clean Watersheds Needs Survey 2009: Report to Congress* (2010), available at http://water.epa.gov/scitech/datait/databases/cwns/upload/cwns2008rtc.pdf.

64 Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues."

65 Environmental Protection Agency, *Clean Watersheds Needs Survey 2009: Report to Congress*.

66 Congressional Budget Office, *Public Spending on Transportation and Water Infrastructure*.

67 Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues."

68 Environmental Protection Agency, *Drinking Water Infrastructure Need Survey and Assessment*.

69 Copeland and Tiemann, "Water Infrastructure Needs and Investment: Review and Analysis of Key Issues."

70 Brett Walton, "U.S. House Appropriations Committee Cuts Funding for Water Programs in 2013 Budget" (Traverse City, Michigan: Circle of Blue, 2012), available at http://www.circleofblue.org/waternews/2012/world/u-s-house-appropriations-committee-cuts-funding-for-water-programs-in-2013-budget/.

71 Ibid.

72 Hanlon, "Our Nation's Water Infrastructure: Challenges and Opportunities."

73 Ibid.

74 Environmental Protection Agency, *Clean Water State Revolving Fund Programs: 2009 Annual Report*.

75 Cooper, "Meeting the Infrastructure Imperative."

76 Environmental Protection Agency, *Clean Water State Revolving Fund Programs: 2009 Annual Report*.

77 Cooper, "Meeting the Infrastructure Imperative."

78 Ibid. The author's estimates are based on the improved capacity gained by the New York state and Connecticut loan funds by employing both a leveraging and active asset investment model. The Environmental Finance Advisory Board found that those strategies increased the financing capacity by 20 percent. With an increase of $2.4 billion federal and if all loan funds adopted these strategies, the internal subsidy capacity of the loan funds would grow by as much as $480 million. Adoption of these strategies, however, is not likely to be universal nor necessarily uniform. As such, the author conservatively assumes a 60 percent increase in credit capacity can be generated by these reforms.

79 Environmental Protection Agency, *Ensuring a Sustainable Future An Energy Management Guidebook for Wastewater and Water Utilities* (2008), available at http://water.epa.gov/infrastructure/sustain/upload/Final-Energy-Management-Guidebook.pdf.

80 Johnathan Gledhil and others, "Energy Efficiency in the Water Industry" (Washington: American Council for an Energy-Efficient Economy, 2011), available at http://www.aceee.org/files/proceedings/2011/data/papers/0085-000099.pdf.

81 Environmental Protection Agency, *Opportunities for Combined Heat and Power at Wastewater Treatment Facilities: Market Analysis and Lessons From the Field* (2011), available at http://www.epa.gov/chp/documents/wwtf_opportunities.pdf.

82 Tom Kenworthy, "A Renewable Energy Standard: The Proof Is in the States" (Washington: Center for American Progress, 2009), available at http://www.americanprogress.org/issues/green/news/2009/05/19/6027/a-renewable-energy-standard-the-proof-is-in-the-states/.

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just, and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is "of the people, by the people, and for the people."

Center for American Progress

1333 H STREET, NW, 10TH FLOOR, WASHINGTON, DC 20005 • TEL: 202-682-1611 • FAX: 202-682-1867 • WWW.AMERICANPROGRESS.ORG