The Takeaway
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Funding the Future of Safe Drinking Water

Fiscal Sustainability Amidst Growing Service Provision Challenges

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The success or failure of the Safe Drinking Water Act (SDWA) over the next 50 years will hinge on one question: how will we pay for safe drinking water? Reaching the SDWA's public-health goals requires secure financing that matches the realities of modern water utilities. In a recent evaluation, the U.S. Environmental Protection Agency (EPA) estimated a 20-year national capital-improvement need of ***$625B****.[1] Policymakers must consider alternative revenue models, capital financing tools, and more robust fiscal health frameworks.*

Federal grant programs no longer carry the load they once did. In 1977, federal funds covered roughly ***63%*** *of water-utility capital improvements. By 2017, that share had fallen to* ***9%****.[2] Even with recent boosts from the Infrastructure Investment and Jobs Act (more than $50B for water), demand vastly outstrips supply. For example, Texas' 2023 Drinking Water State Revolving Fund had a program capacity of $342M against requests exceeding $2.4B.[3]*

WHAT'S THE TAKEAWAY?

Per-capita water consumption is falling while fixed costs and treatment requirements (e.g., PFAS, lead) are rising, putting pressure on the user-pays revenue model.

Federal grants are insufficient for meeting local drinking-water capital improvement needs. Long-term sustainability requires new approaches.

Promising tools include dedicated state revenues, bond-guarantee programs, payments for ecosystem services, and a permanent low-income water assistance program.

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2 RETHINKING FISCAL HEALTH FOR WATER UTILITIES

The landmark Safe Drinking Water Act legislation recently celebrated its 50-year anniversary. Looking forward to the next 50 years of safe drinking water raises a central question about how we pay for today's costs and tomorrow's infrastructure. The SDWA has long been considered an important foundation, not only for protecting safe drinking water through regulatory frameworks, but also for funding water infrastructure improvements. For example, the SDWA requires that the EPA examine the need for infrastructure improvement and maintenance for public water systems in the United States.[3] Despite this, the SDWA and other existing frameworks do not account for fiscal health or the ability of current revenue structures and investment strategies to meet long-term needs.

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We define fiscal capacity as a utility's ability to generate enough revenue to cover current operational needs, and fiscal sustainability as its long-term ability to maintain infrastructure, service debt, and adapt to changing conditions.[3] The extent to which policymakers address water system capacity and sustainability will determine the extent to which they can fulfill delivery obligations. Traditionally, the fiscal solvency of water systems is assessed in terms of debt-to-asset ratios. While the debt-to-asset ratio gauges the extent to which an organization can generate resources to cover liabilities, water and sewer utilities are limited in their ability to leverage their primary assets (built infrastructure). The economic value of a water system hinges on customer base size, ability to pay, and pricing constraints. Replacement costs, in that sense, do not reflect the availability of future cash flows necessary to service debt. Thus, ostensibly healthy debt-to-asset ratios are a poor reflection of long-term solvency.

Instead, we propose a more holistic alternative that encompasses all long-term liabilities including debt, pensions, and other post-employment benefits as a percentage of operating revenues. This is a better measure of fiscal sustainability because it captures all long-term liabilities against actual revenue generating capacity instead of overvalued or aging fixed assets.

REVENUE PRESSURE IN A USER-PAYS SYSTEM

American water finance rests overwhelmingly on user fees as the single most important source of operating revenues. The model is intuitive and economically efficient when prices reflect costs, but it produces structural problems for utilities. First, the bulk of utility costs are fixed (treatment plants, mains, storage). Second, per-capita consumption is falling steadily across the country as efficient appliances and fixtures replace older ones, eroding the volumetric base. Third, the same trend appears, more sharply, in shrinking cities, where fixed infrastructure costs must be spread over fewer customers and undersubscribed pipes can fail more often. Average costs matter, and the consumer base is falling in terms of both per-capita consumption and the number of consumers. While the high fixed asset costs

and long-term liabilities, are a financial pressure on utilities.

Costs, meanwhile, are rising. Growing labor and materials costs affect every utility. Treatment costs are an open-ended risk as new contaminants come into regulatory scope. The EPA's 2024 PFAS rule alone is estimated to cost utilities roughly $1.5B per year to implement.[4] Microplastics may be next. Rates rise in response, but rate increases also reduce consumption and raise affordability concerns. This represents a cycle that volumetric pricing alone cannot resolve.

Service provider fragmentation magnifies these pressures to an even greater extent. More than half of 50,000 U.S. community water systems serve fewer than 500 people, while just 1,545 systems serve roughly two-thirds of the 318 million people on community water. Small systems struggle to capture economies of scale, recruit specialized labor, or access capital markets at competitive rates. Consolidating water systems to reduce fragmentation makes economic sense but remains politically difficult and financially complex.

INFRASTRUCTURE FINANCING TODAY

State Revolving Fund (SRF) programs and federal grants remain important but are far smaller than the need. Evidence on whether SRF dollars stimulate new local investment is mixed, and utilities are subject to state-agency priority lists that may not match their own. The most consequential financing tool is, in fact, not federal grants, but tax-exempt municipal bonds. Roughly $38B in municipal bonds were issued for drinking-water and wastewater investment in 2016 alone, drawing on a $4 trillion tax-exempt market. The bond market's tax exemption, however, is a tool that is not equally accessible, since small, infrequent issuers face high transaction costs and depend heavily on financial intermediaries.

Within municipal bonds, revenue bonds backed by water and sewer payments are most common. Green and sustainability bonds can attract environmentally focused investors and may earn a modest pricing advantage, though evidence on the size of any "greenium" is mixed. Public-private partnerships (PPPs) are popular in academic discussion but represent only 1–3% of combined highway, transit, and water spending, and within water, are concentrated in operations and maintenance rather than financing.

> *There is no single solution to the water-finance gap.*

IDEAS FOR THE FUTURE

There is no single solution to the water-finance gap. We highlight a portfolio of tools, several of which borrow design ideas from other policy domains:

Dedicated revenue streams. Colorado's 10% tax on sports-betting revenue raised roughly $44M for state water projects between May 2020 and April 2024. Minnesota dedicates a share of state lottery revenue to its natural resources trust fund. These mechanisms convert politically attractive revenues into stable funding for water infrastructure.[3]

Bond-guarantee programs. Texas' Permanent School Fund guarantees school-district bonds and earns them an AAA rating, lowering borrowing costs without bond insurance. A comparable structure for small water utilities would directly reduce interest expense over the life of long-lived assets.[3]

Payments for ecosystem services. Source-water protection can be cheaper than downstream treatment.[5] EPA's Funding Integration Tool for Source Water lists 14 federal programs already supporting this work, and

the 2018 Farm Bill directed at least 10% of NRCS conservation funding (roughly $400M/year) to source-water protection.[3]

Smarter rate design. A U.S. Water Alliance pilot replaces uniform fixed charges with property-based fixed rates (e.g., parcel area, frontage, value) that better track distribution costs and benefits, lowering bills in lower-income neighborhoods while preserving volumetric incentives for conservation.[6]

Targeted household assistance. A permanently funded Low-Income Household Water Assistance Program (LIHWAP), modeled on Low Income Home Energy Assistance Program (LIHEAP), would address affordability at the household level without requiring every utility to redesign its rate structure. The pandemic-era LIHWAP demonstrated the demand and the administrative challenges of running such a program across 148,000 water utilities.[3]

Each option carries tradeoffs in equity, administrative burden, and political feasibility. None replaces the core revenue model on its own.

CONCLUSION

The next 50 years of safe drinking water will be shaped less by treatment chemistry than by financing strategy and governance decisions. Policymakers and utility managers need a more holistic view of utility fiscal health that is realistic about the sustainability of operating revenues. Innovative financing solutions, along with system-level governance decisions to address fragmentation should be considered to ensure that water infrastructure is fiscally viable for the next 50 years of the Safe Drinking Water Act.

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Notes:

[1] U.S. EPA. (2023). Drinking Water Infrastructure Needs Survey and Assessment (7th Report to Congress).

[2] Brey, J. (2024, June 19). When $20 billion isn't enough: Water infrastructure. *Governing*.

[3] Greer, R. A., & Scott, T. A. (2026). Funding the future of safe drinking water: Fiscal sustainability amidst growing service-provision challenges. In M. P. Teodoro (Ed.), *Safe Drinking Water Act* (Ch. 4). Springer. https://doi.org/10.1007/978-3-032-10830-2_4

[4] U.S. EPA. (2024). Fact sheet: Benefits and costs of reducing PFAS in drinking water.

[5] U.S. EPA. (2015). Basic information about source water protection.

[6] U.S. Water Alliance. (2023). A promising water pricing model for equity and financial resilience.

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