



Recovering **Stronger**

Transforming Water Management Post COVID-19

Recovering Stronger: **A Federal Policy Blueprint**

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Preface

The US Water Alliance is releasing this federal policy agenda during a time of great change—in our daily lives, in the water sector, and in the United States. COVID-19 is upending life across America, disrupting business as usual and shifting the way we relate to and work with one another. In many ways, and across many areas of our economy, the pandemic exposes and reinforces structural challenges and social inequities. In the water sector, this plays out in access to water, the cost of water services, governance structures, and even how we fund and deliver critical water services.

That is why the Alliance is launching the *Recovering Stronger* initiative. For the next two years, we will address the structural problems that have led to decades of sub-optimal and inequitable outcomes in water. We will also examine ways to address those problems: pricing water to reflect its true value, providing affordable and universal access, catalyzing utility partnerships and consolidation, deploying smart water operations at scale, and using water as a key pathway to address the climate crisis.

We have a unique opportunity in how we respond to and recover from COVID-19. We can take this moment of disruption to rework our systems so that they ensure both the financial stability of water agencies and the equitable delivery of services. If we do this, we can emerge stronger than before—a resilient water sector prepared for the challenges that lie ahead.

At the US Water Alliance, we are committed to aligning diverse stakeholders to find common ground solutions to our nation’s most pressing water challenges. This commitment and mission is more critical than ever during this public health and economic crisis. We hope that this federal policy agenda will spark national dialogue and serve as a blueprint for the 117th Congress and the Biden administration in employing water investments and policies to set the country on a transformational path to recovery.

One Water, One Future.



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Key Components of the Alliance's Recovering Stronger Initiative



Recovering Stronger

- **Recovering Stronger through Federal Policy.** The water sector has largely been left out of federal recovery spending, and it is a missed opportunity. The Alliance will develop a federal policy agenda for recovering stronger in the water sector. We will collaborate with diverse partners to inform future stimulus and recovery funding and policies, host educational briefings, and elevate the voices of aligned coalitions.
- **State Policy Innovations: Listening Sessions.** States are a seedbed for water innovation and can play a central role in helping the water sector recover stronger. The Alliance will collaborate with regional partners to host listening sessions that explore emerging state policy approaches. The insights will be synthesized into a nationwide state policy agenda for recovering stronger.
- **Five Pilots to Drive Local Innovation at Water Agencies.** In partnership with water agencies, the Alliance will develop five local pilots focusing on water access, affordability, utility collaboration and consolidation, smart water management and using water as a pathway to address climate change. Our first pilot, Preventing Shutoffs for Low-Income Households, will support 10 utility-community partnerships on preventing water shutoffs for low-income households while balancing financial resilience.
- **Spread and Share Insights to Shape the National Narrative.** The Alliance will spread lessons and insights from this project across a growing national network through influential events, virtual trainings, peer dialogues, and presentations. It will also shape the national narrative through media activities, publications, and other strategic communications.

Learn more at www.uswateralliance.org/initiatives/recovering-stronger.

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Introduction

Water is the lifeblood of communities, the environment, and the United States' economy. While always essential, water has taken an elevated role in public health and well-being since the COVID-19 crisis. Water must be a central part of the recovery.

Like so many other parts of the economy, the water sector has felt the effects from compounding crises of the pandemic and a nationwide recession, including utilities' increased costs and declining revenue. On the cost side, in addition to ongoing operations, maintenance, and regulatory compliance costs, utilities have increased expenditures associated with emergency operations during the pandemic. On the revenue side, large customers such as convention centers, industry and manufacturing facilities, sports arenas, hotels, schools, restaurants, and office buildings are all operating at drastically reduced capacity, which translates to reductions in water consumption and rate revenues. Devastating economic repercussions have made it more difficult for people to pay their utility bills, further restricting cash flow. To make the matter worse, rising unemployment and personal income loss have exacerbated already difficult challenges for many low-income consumers. Widespread water bill debts have resulted in very real consequences on families who, in some cases, may have their water shut off for nonpayment.

The American Water Works Association (AWWA) and the Association of Metropolitan Water Agencies (AMWA) estimate that drinking water utilities will experience a negative aggregate financial cost of \$13.9 billion, or 16.9 percent, by 2021, due to revenue losses and increased operational expenses during the pandemic.¹ The National Association of Clean Water Agencies (NACWA) estimates that the resulting financial cost on wastewater utilities will be even higher, around \$16.8 billion, including a 20 percent drop in sewer revenues.² This unprecedented disruption to utility operations will delay needed infrastructure investments that are necessary to drive economic growth, safeguard public health, and protect the environment. Without federal assistance, utilities will likely need to reduce staff and raise customer rates to make up for their financial losses.

Smaller and rural utilities are in even more dire circumstances. Lower-capacity utilities may not survive extended crisis conditions without assistance. A survey conducted early in the pandemic showed that only 30 percent of rural utilities indicated that they could continue to pay for all system costs beyond a year if the revenue losses continued due to the COVID-19 pandemic.³ These systems are also uniquely vulnerable to COVID-19 outbreaks. More than 43 percent of these systems rely on one full-time operator or part-time staff, operators, and/or volunteers.⁴

The current situation facing water utilities across the United States did not just *happen*. Decades of federal underinvestment in water infrastructure have left state and local governments to manage and update water systems largely on their own. Between 1977 and 2017, the federal government's contribution to water infrastructure capital spending fell from 31 percent in 1977 to just four percent in 2017, while federal spending on other infrastructure categories has been much higher and remained roughly stable. Despite local utilities' best efforts to make do with what resources they have, the rate of water main breaks in the US rose between 2012 and 2018 by 27 percent, to roughly 300,000 breaks per year—equivalent to a break more than every two minutes.⁵ Drinking water systems currently lose at least six billion gallons of treated water per day, 2.1 trillion gallons per year.⁶ The US also lost an estimated \$7.6 billion of treated water in 2019 due to leaks. As water infrastructure deteriorates and service disruptions increase, annual costs to US households for water and wastewater failures will be seven times higher in 20 years than they are today—from \$2 billion in 2019 to \$14 billion by 2039.⁷ If this trend continues, the nation's water systems will become less reliable, breaks and failures will become more common, vulnerabilities to disruptions will compound, and the nation's public health, safety, economic recovery, and long-term growth will be at risk.

Clean, affordable, and accessible water and wastewater services and flood protection are essential to public health and thriving communities. Water and wastewater systems are two of the greatest public health achievements in this country and cannot take them for granted. While COVID-19 emergency federal assistance has flowed to other affected sectors like transit and air travel—Congress has provided very little direct, targeted relief for the water sector.⁸ This is a serious oversight with costly implications for all. Dozens of industries like food

production, mining, manufacturing, and health care depend on water and wastewater services to function. If these and other sectors lost access to water and wastewater services, the economic and public health effects would be devastating. The COVID-19 pandemic has shown that the public health benefits from safe drinking water and wastewater treatment are immeasurable. And even before the crisis, over 2 million people in the US still lacked reliable access to water.⁹

These inequitable realities only underscore what the nation already knows: there can be no equitable recovery from the COVID-19 pandemic without a focus on water. To recover stronger from this crisis and achieve safe, reliable, and affordable water, there must be an approach that coordinates between local, state, and federal governments. The US Water Alliance believes that any recovery plan must include water investments as a central component to achieve the following outcomes:

- **Make Water More Stable.** Federal recovery efforts must address the short-term financial shortfalls and the long-term structural challenges in the water sector. In the short term, water systems need increased liquidity to make up for lost revenue to keep the taps flowing and capital improvements on schedule. The sector also needs long-term support, including dedicated funding and technical assistance to better prepare and fortify water utilities from future crises.
- **Make Water Safer.** While advanced water treatment technologies have allowed people in the US to enjoy some of the best drinking water in the world, challenges remain, particularly related to contaminants like lead and per- and polyfluoroalkyl substances (PFAS). The federal government must take a holistic approach and make historic investments across federal agencies aimed at eliminating emerging and legacy contaminants in the water sector—especially in communities of color, rural and urban low-income communities, and tribal communities.

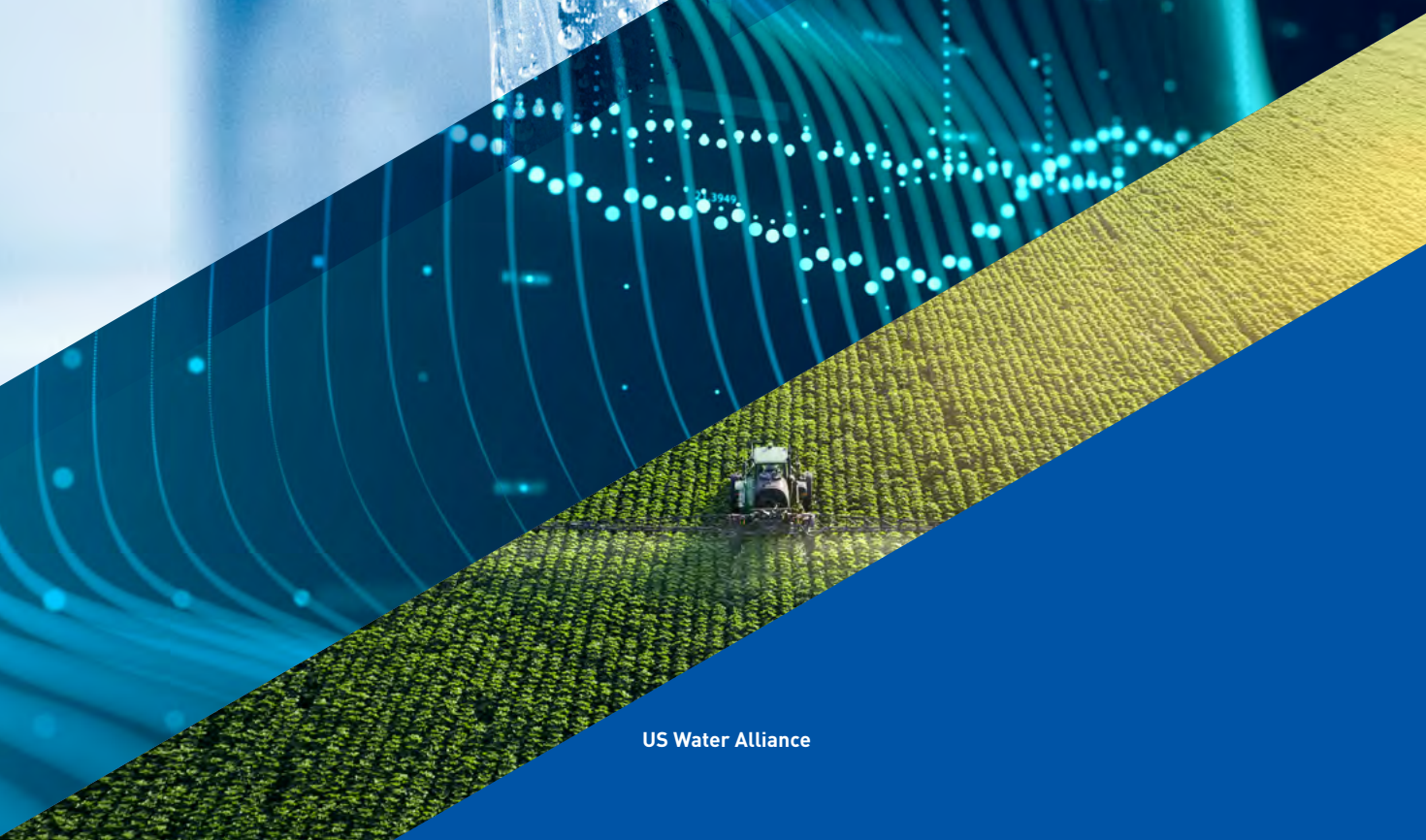
- **Make Water More Affordable and Accessible.** There are significant structural and institutional barriers to water affordability and access. Low-income communities and communities of color in both rural and urban areas are disproportionately affected by a lack of access to safe and affordable drinking water and wastewater services. The federal government needs to take an active role in addressing water affordability and access through increased monitoring, data collection, funding, and programs to eliminate structural inequities in the water sector.
- **Make Water Smarter.** Technology adoption can help water and wastewater systems deliver critical public health services that are safer, more affordable, and more resilient. Financial and regulatory constraints have created obstacles to widespread adoption of tools that can save ratepayers and utilities' money, ensure better service, and improve environmental outcomes. The federal government can incentivize utility modernization and research in the water sector. From support for pilot projects to research grants for moonshot technology ideas modeled on existing defense and energy programs, the whole water sector can come into the 21st century.
- **Make Water More Resilient.** Climate change is significantly affecting the nation's water systems. Communities around the nation are already experiencing climate stress through water stress, including rising sea levels, and the increased frequency and intensity of storms, hurricanes, floods, fires, and droughts. These changes mean that managing water systems cannot go on as it had historically. Equitably planning for disasters, improving post-disaster recovery efforts, mitigating future impacts, and investing in resilient water systems will strengthen our capacity to prepare for, withstand, and recover from current and future climate impacts.
- **Take a Whole-of-Government Approach to Federal Water Management.** One Water is the idea that drives the US Water Alliance's work. It emphasizes systems-thinking approaches and collaboration to solve water management challenges. More than 20 federal agencies handle some component of water management, and there is a great need to manage water holistically across all agencies. A recovery plan must execute a cross-agency water management strategy that embraces One Water principles and ensures that every federal department and agency's mission can come to fruition.

Together with partners and allied organizations, **the US Water Alliance has acted with urgency and purpose** to drive long-overdue changes that will allow the water sector—and the nation—to recover stronger. The following policies form a blueprint for the 117th Congress and the Biden administration to use water investments and policies to set the country on a transformational path to recovery.

Summary of Policy Proposals

Make Water More Stable	8	Make Water More Affordable and Accessible	20
<ul style="list-style-type: none">• Provide direct financial relief to water utilities to make up for lost revenue due to COVID-19.• Enact temporary, short-term financial and tax policy changes to support the financial solvency of local water agencies.• Increase funding for the state revolving funds (SRFs) and Water Infrastructure Finance and Innovation Act (WIFIA), with expanded technical assistance to water utilities.• Expand US Department of Agriculture (USDA) water and environmental programs.• Incentivize regional partnerships between utilities.		<ul style="list-style-type: none">• Expand and improve the Low-Income Household Drinking Water and Wastewater Emergency Assistance Program.• Provide technical assistance to utilities for customer assistance program (CAP) operations and equitable rate design.• Increase funding for places too remote for centralized infrastructure.• Revamp census questions on water access and affordability and centralize federal data.• Conduct equity assessment and mapping.	
Make Water Safer	14	Make Water Smarter	26
<ul style="list-style-type: none">• Map all lead service lines.• Create a cross-agency “Lead Safe Communities” fund to replace lead service lines on both public and private property.• Research the health effects and scope of per- and polyfluoroalkyl substances (PFAS) contamination.• Restrict the use and sale of PFAS.• Require Department of Defense (DOD)-funded remediation of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).		<ul style="list-style-type: none">• Establish an assistance program to aid utility modernization.• Establish a national Internet of Water network.• Create a research and development (R&D) program supporting innovation in the water sector.• Expand and improve federal efforts to develop the water workforce.	
		Make Water More Resilient	30
		<ul style="list-style-type: none">• Enact an equitable climate and water disaster resilience package.• Incentivize natural infrastructure solutions and resilient water resources management.	
		Take a Whole-of-Government Approach to Federal Water Management	34
		<ul style="list-style-type: none">• Issue an executive order to align federal agencies on water management.	

Make Water More Stable



This section discusses the financial sustainability of the water sector. Recommendations center on the fundamental tension that water is a necessity for all, but the cost of providing water and wastewater services is rising. Additionally, the majority of operations, maintenance, and capital improvement costs for an individual utility are funded by water bills that customers pay. In most communities, water rates do not reflect the true cost of providing this essential service. Because of this, a utility's ability to cover increasing costs and maintain system reliability depends on the financial well-being of its customers, which is increasingly precarious. The ongoing COVID-19 pandemic has only worsened this situation. The recommendations provide practical solutions to address both emergency and long-term funding needs while addressing structural issues like system fragmentation.

To make the water sector more stable, the federal government should:

- **Provide direct financial relief to water utilities to make up for lost revenue due to COVID-19.**
- **Enact temporary, short-term financial and tax policy changes to support the financial solvency of local water agencies.**
- **Increase funding for the state revolving funds (SRFs) and Water Infrastructure Finance and Innovation Act (WIFIA), with expanded technical assistance to water utilities.**
- **Expand US Department of Agriculture (USDA) water and environmental programs.**
- **Incentivize regional partnerships between utilities.**

Provide Direct Financial Relief to Water Utilities That Make up for Lost Revenue Due to COVID-19

As a result of the declining revenues during the pandemic, coupled with increased costs, drinking water systems are projecting a \$15.5 billion loss,¹⁰ and wastewater systems are projecting a \$12.5 to \$16.8 billion loss.¹¹ In many cases, this unprecedented disruption to utility revenue will delay badly needed infrastructure investments at the local level that support economic growth, safeguard public health, and protect the environment. Utilities need federal funding to offset the revenue losses and increased emergency operating costs, similar to how the Coronavirus Aid, Relief, and Economic Security (CARES) Act provided assistance to airports, public transit, and other service entities. The financial stability of drinking water and wastewater utilities is critical to their ability to provide clean, safe, and reliable service to their customers. Congress must provide financial relief to utilities so that reliable water service is not compromised because of customers' inability to pay their water bills. Local water utilities stepped up to maintain life-sustaining, essential services during the pandemic and took a financial hit to do so. They need the resources to become whole.

Legislative Action

Congress should provide direct financial relief to local water utilities to offset revenue losses and emergency operating costs incurred due to COVID-19. The federal government should provide funds directly to utilities as grants or forgivable loans. There should also be funds for technical assistance to help lower-capacity utilities access financial relief.

Enact Temporary, Short-Term Financial and Tax Policy Changes to Support the Financial Solvency of Local Water Agencies

Even under normal circumstances, many state and local governments (which fund 97 percent of the infrastructure investments in the water sector) struggle to make ends meet.¹² The pandemic made these problems even more acute, increasing the need for financial and technical assistance to access the limited federal funding and finance tools available to the water sector. A few targeted changes to the tax code can be leveraged for substantial results in the sector.

Legislative Action

Congress should enact legislation that would make changes to the tax code as follows.

- Congress should establish a Public Water Liquidity Facility, similar to the Municipal Liquidity Facility established in the CARES Act, which would buy up short-term notes (financial obligations that generally run for less than two years) directly from water utilities and inject capital directly into the utility to help pay for operating costs. Providing water utilities with direct access to the Federal Reserve will assist utilities in managing short-term cash flow issues.
- Congress should restore tax-exempt advance refunding for utilities and their restructuring abilities on debt obligations issued in at least the last 10 years and throughout the COVID-19 crisis. This would keep, or lower, the cost of capital for utilities improving their financial situation and help keep water rates low for customers.
- Congress should raise limits on bank-qualified debt to \$40 million for at least two years. This would encourage banks to invest in tax-exempt bonds from smaller municipalities and to provide access to lower interest rates. The American Recovery and Reinvestment Act of 2009 changed the bond limit for a two-year period to \$30 million.¹³

- Congress should create a Taxable, Interest-Subsidized, Infrastructure Bond (TIIB) for all types of infrastructure—including water—that features federal tax credits or subsidies for bondholders and state and local government bond issuers. This would make investors who are interested in the traditional tax-exempt municipal bond offerings (like insurance companies and mutual funds) interested in investing in water infrastructure projects as well. This is similar to the very successful Build America Bonds program from the American Reinvestment and Recovery Act of 2009. When established, the program should be exempt from any future sequestration to reduce investor risk.

Increase Funding for SRFs and WIFIA with Expanded Technical Assistance to Water Utilities

Water infrastructure is dramatically underfunded in the United States. The American Society of Civil Engineers gives the US a D grade for drinking water¹⁴ and a D+ grade for wastewater.¹⁵ The nation needs a \$1 trillion investment in drinking water and another \$250 billion for wastewater just to bring these essential services up to a state of good repair. WIFIA, the SRFs, and technical assistance funding are proven financing mechanisms that can close this gap if fully funded. The national backlog of necessary improvement projects has grown too large and desperately needs increases in funding through these accounts. With increased investment to close the water infrastructure investment gap, the nation's Gross Domestic Product (GDP) would grow by \$4.5 trillion in 20 years. This investment could create 800,000 new jobs and raise disposable income by more than \$2,000 per household.¹⁶ Moreover, the application process for both WIFIA and the SRFs currently takes more than a year, delaying much-needed infrastructure investment. To safeguard federal or state investment, both processes could easily be streamlined while continuing the same level of community involvement, public comment, and due diligence.

Executive Action

The United States Environmental Protection Agency (EPA) should convene a taskforce of staff and water sector stakeholders to recommend ways to streamline the application process for both the SRFs and WIFIA to bring more utilities into the process and lower the cost of applying for funds. This taskforce should also investigate ways to maximize investment efficacy for environmental justice communities, low-income areas, and rural communities.

Legislative Action

Congress should permanently augment water infrastructure funding through increased federal appropriations for the Drinking Water State Revolving Fund (DWSRF), Clean Water State Revolving Fund (CWSRF), and Water Infrastructure Finance and Innovation Act (WIFIA) programs. Collectively, these programs are annually funded at around \$2.7 billion. Funding should **at least be doubled**, and technical assistance should be expanded to help communities apply for these programs. At least 40 percent of funds through these programs should be allocated as grants, negative interest loans, and principal forgiveness for environmental justice communities, low-income areas, or rural communities.

Expand USDA Water and Environmental Programs

More than 90 percent of drinking water systems serve fewer than 10,000 people.¹⁷ These small, predominantly rural utilities represent a larger total number of compliance issues (although the percentage of small systems with health-based violations is actually smaller than larger systems) and struggle to achieve monitoring compliance with water quality standards set by the Clean Water Act and Safe Drinking Water Act. Without a large ratepayer base, small utilities often cannot cover the costs of service and struggle to make necessary investments in operations and maintenance, let alone capital expenses. The COVID-19 pandemic has made this situation considerably worse.

Increasing funding for water and wastewater services in rural communities will not just help individual utilities and their customers during, and emerging from, the pandemic—it will serve as an investment in rural communities as a whole. It will ease the financial burden associated with system repairs for state and local governments with many small systems and the customers of those systems. It is important that funds are provided as grants rather than loans. Small systems often cannot pay back a loan or do not have the resources and expertise to apply for one in the first place. An increase in technical assistance funding via USDA grants will provide small utilities with the added capacity they need to make loan and grant dollars go further, avoid noncompliance issues, and keep their customers safe.

Legislative Action

Congress should at least double appropriations for the USDA Rural Development Water and Environmental Program to boost the agency's grant, technical assistance, and training programs, including the Rural Utilities Service Water and Environmental Programs (WEP). With a successful track record, this critical and underfunded program helps small, struggling utilities come into compliance and provide safe, reliable water service to their customers. Congress should also expand the WEP Programs to include a new regionalization technical assistance program to facilitate regionalization projects. It should also expand the existing USDA Household Water Well System Program to include grants and forgivable loans, particularly for low-income households.

Incentivize Regional Partnerships between Utilities

The extent of a partnership can vary widely from simple agreements to help one another in an emergency to joint purchase agreements on bulk chemicals, to the full physical consolidation of multiple systems.¹⁸ Partnering with a nonprofit with experience in the water sector or a successful neighboring utility are proven ways for systems to solve common problems like purchasing affordable supplies, paying for additional qualified system operators, establishing a sustainable customer base, and more.¹⁹ Incentivizing voluntary partnerships between utilities will greatly benefit small, struggling systems and their customers. The previously noncompliant utilities will be able to provide safe, reliable water and wastewater service to their customers. Small utilities, previously struggling to operate successfully, will have added capacity and funds to complete necessary upkeep and improvement projects. Additionally, both utilities will now have created a larger customer base and be able to pass the savings associated with having a larger pool of ratepayers on to their customers.

As the EPA regulations currently stand, they can find the good-neighbor utility liable for the very infractions it is helping a struggling utility to rectify. An atmosphere that incentivizes these helpful partnerships will better provide safe, reliable water service for all, regardless of the water system that serves them. Another way to incentivize partnerships is to prioritize projects that include regionalization, consolidation, and life-cycle cost calculations. Pooling resources and streamlining services through consolidation are proven to address necessary repairs to crumbling water infrastructure, as well as water affordability concerns. Including life-cycle cost analysis at the inception of a project allows for greater anticipation of costs and more accurate rate estimation. Project applications with these considerations in mind are smart investments and should be given increased priority by SRF managers and EPA's Office of Water for WIFIA applications.

Executive Action

The EPA should fully implement Sections 2009 and 2010 of America's Water Infrastructure Act of 2018, which allow a public water system to submit a plan to execute a contractual agreement to manage a noncompliant public water system and give the EPA and primacy states the authority to require assessments of options for consolidation. The EPA should also alter the algorithm for WIFIA and SRF projects to more heavily favor projects that include a life-cycle cost calculation and consolidation practices. It should also provide smaller utilities with technical assistance from the SRF and WIFIA programs to undertake life-cycle cost analysis.

Legislative Action

Congress should pass legislation to incentivize voluntary partnerships between struggling utilities and good-neighbor utilities by reducing federal liability concerns for the good-neighbor utility for a short, defined period while they are executing the partnership. Congress should also establish a technical assistance program to help smaller or less-resourced utilities evaluate and undertake partnerships, regionalization, and consolidation activities.

Make Water Safer



This section discusses both legacy and emerging challenges that impinge on the safety of drinking water in the United States. While the quality of drinking water and the things that affect it can be wide ranging, this discussion focuses on two contaminants—lead and per- and polyfluoroalkyl substances (PFAS). Both endanger large parts of the country and have garnered significant coverage in the media. In both cases, the cost of full remediation is significant.

Lead service lines (LSLs) were widely used in water-supply systems until the early 20th century.²⁰ Although lead piping and plumbing components were well recognized as a cause of lead poisoning by the late 1800s, the national model plumbing codes that formed the basis of most water system policies approved lead into the 1970s and 1980s.²¹ Because water systems are built to last decades and are difficult and costly to excavate once installed, the replacement of these pipes has varied significantly based on each community's awareness of the problem and ability to fund LSL replacement projects. Water utilities are responsible for providing safe drinking water by treating water to regulatory standards and maintaining safe water quality throughout their distribution systems. Changes in water chemistry and disturbances to water mains can cause lead from these older water lines to contaminate drinking water. And in many places, utilities do not control the portion of water lines that run under a privately owned property. Moreover, indoor plumbing controlled by homeowners, landlords, or schools may contain lead pipes, solder, and fixtures. Lead exposure creates lifelong impairments in cognition and health, and it disproportionately affects low-income communities and communities of color.²² While lead exposure can cause cardiovascular, kidney, and reproductive issues in adults, it is particularly harmful to children. Children with a high rate of exposure are more likely to exhibit developmental issues including lower IQ, hyperactivity, and slowed growth.²³ While water utilities can play a leading role, community-wide solutions require the engagement of schools, city departments, state agencies, community groups, and other stakeholders.

Emerging contaminants like PFAS, which are a class of thousands of chemicals used since the 1950s to make a wide range of water-resistant, grease-proof, nonstick, firefighting, and flame-retardant products. PFAS are (or degrade to) chemicals that are water-soluble and endure in the environment. Some build up in the human body over time, and nearly all people tested in representative sampling by the Centers for Disease Control and Prevention (CDC) have detectable levels of some PFAS in their blood.²⁴ Two chemicals in the PFAS family, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), have been detected above health advisory levels in millions of people's drinking water in the United States.²⁵ The EPA set a lifetime health advisory for PFOA and PFOS in 2016, and several states have subsequently set more stringent advisories and state regulations for multiple PFAS in drinking water and groundwater.²⁶ Health concerns are based on demonstrated toxicity in animal testing and observational studies in humans that have reported associations between exposure and negative health effects, including thyroid disease and kidney cancer.²⁷ Widespread manufacturing and use of these chemicals in industry and the military have led to a high prevalence in common products, providing many contamination pathways into drinking water systems and subsequently into wastewater systems. As of July 2020, at least 2,230 locations in 49 states have PFAS contamination.²⁸ While the methods to remove certain subsets of PFAS are well known, they can be extremely expensive, leading to the same patchwork remediation the US has seen with LSL replacements. Further, with more than 85,000 chemicals in commercial use in the US today,²⁹ and without adequate research on the health effects of these chemicals before they are released into commerce, it is likely that this same scenario—water systems needing to remediate dangerous chemicals originating from outside the system—will occur again and again.

To make water safer, the federal government should:

- **Map all lead service lines.**
- **Create a cross-agency “Lead Safe Communities” fund to replace lead service lines on both public and private property.**
- **Research the health effects and scope of per- and polyfluoroalkyl substances (PFAS) contamination.**
- **Restrict the use and sale of PFAS.**
- **Require Department of Defense (DOD)-funded remediation of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA).**

Map All Lead Service Lines

LSLs are most prevalent in the Northeast and Midwest, but more than 2,000 cities all over the country (at least one in every state) have elevated levels of lead in their drinking water.³⁰ Approximately 30 percent of water systems in the US report the existence of lead service lines,³¹ and 44 percent of schools have water with a lead concentration at or above their state’s action level.³² The Lead and Copper Rule revisions finalized by the Trump Administration in December 2020 include a requirement that public water systems carry out a full inventory of their service lines so communities and customers better understand which properties may be at greater risk of lead exposure. While the most certain way to eliminate lead exposure in drinking water is to replace LSLs and all other plumbing in a household with products made from other materials, this is a time-, human-, and resource-intensive process, complicated by a shared responsibility between utility and property owner. In the near term, the LSL inventory will help communities chart a course for replacing lead service lines while employing corrosion control measures to minimize the leaching of lead from pipes and household plumbing.

Executive Action

The EPA should lead a multi-agency task force that includes the Department of Housing and Urban Development (HUD), Department of Health and Human Services, USDA’s Rural Utilities Service, and Department of Education to coordinate the complete LSL mapping in cooperation with state and local governments.

Legislative Action

Congress should fully fund the complete mapping of all lead service lines in the United States, on both public and private property to have full awareness of the scope of the lead problem. Congress should also include resources for technical assistance for low-income communities to gain access to such federal funding.

Create a Cross-Agency “Lead Safe Communities” Fund to Replace Lead Service Lines on Both Public and Private Property

While corrosion control treatment measures are an effective temporary solution to reducing the prevalence of lead in drinking water, they are not a permanent fix, as lead can still leach into pipes in unpredictable ways. And some corrosion control measures added to a community’s drinking water, like phosphates, must then be cleaned out of the water at wastewater treatment plants, further increasing the cost for the community. Full replacement of LSLs and tackling lead sources inside homes are the only viable ways to ensure the water supply to homes is free of harmful metals. Full LSL replacement, at an average cost of \$4,700 per household (ranging from \$1,200 to \$12,300 per line replaced) across the US, presents a massive financial hurdle.³³

Additionally, low-income communities and communities of color are more likely to have an LSL leading into their homes, more likely to have lead plumbing/fixtures in the house, and less likely to afford a replacement, a major systemic inequity. Further, various programs to address lead contamination exist through the EPA, CDC, and HUD. Funding for these programs, however, must be increased and better coordinated to adequately address the issue adequately.

Legislative Action

Congress should create a Lead-Safe Communities Fund for the removal of lead paint, the funding of water pipe corrosion control treatment measures, support for state programs to identify and replace lead plumbing/fixtures in individual homes, and the replacement of lead service lines on both public and private property. This fund should coordinate, streamline, and increase current funding across agencies to fight lead poisoning holistically. Activities should also include but not limit to the following:

- Supporting utilities that pilot innovative financing for LSL replacement³⁴
- Developing equity criteria for LSL replacement for vulnerable populations
- Directing the Internal Revenue Service (IRS) to provide tax-exempt bond financing for removal of LSLs
- Mandating that IRS and the Department of the Treasury (through the Federal Housing Administration and Fannie Mae and Freddie Mac) include the cost of LSL replacement in a home’s mortgage

Research the Health Effects and Scope of PFAS Contamination

There needs to be more knowledge about the extent of PFAS contamination in the US, as well as the health risks posed by these chemicals, especially in the nation's water supplies. Widespread sampling, monitoring, and surveillance of PFAS, especially in drinking water sources, are key to understanding the scope of the problem and prescribing the best ways to mitigate and eliminate exposure.

Legislative Action

Congress should create a PFAS research program to expand research efforts. These research efforts should center on the sampling, monitoring, and surveillance of PFAS in the nation's waterways, both above and below ground. Recruiting and reimbursing water utilities in the surveillance of these chemicals throughout the water cycle will be crucial to this effort. A component of this effort should also involve sampling for PFAS in very small water systems and low-income communities that rely on private domestic wells. The US Geological Survey should also be funded to surveil the nation's groundwater, and DOD should surveil all federal installations, including the land, surface, and groundwater nearby. Finally, the EPA should fund a research program to develop safe and environmentally friendly alternatives to replace PFAS, as well as their detection, treatment, and removal processes.

Restrict the Use and Sale of PFAS

Consumer and commercial products are key contributors to PFAS contamination. Because PFAS are highly persistent and expensive to clean up, there needs to be a focus upstream in the manufacturing process, so it halts the flow of PFAS-containing products that contribute to contamination of food, drinking water, and the environment. To reduce additional exposure to PFAS, its use must be restricted immediately and phased out. A growing number of people concerned are calling the EPA to set a maximum contaminant level (MCL) for PFAS. The EPA has already established health advisories for PFOS and PFOA.

Executive Action

The administration should direct the EPA to prioritize completing the process for a science-based, health-protective MCL for PFOS and PFOA in drinking water within its first 100 days. EPA should also implement the requirement to report PFAS releases publicly under the Toxic Release Inventory, as required by the National Defense Authorization Act of 2019. Further, the administration should direct the Department of Defense to inventory all PFAS stockpiles and publicly disclose to Congress when there has been an accidental or intentional release.

Legislative Action

Congress should restrict the manufacture and sale of PFAS in all consumer products and require PFAS manufacturers to report their production, distribution, and sale of all PFAS-containing products publicly. Congress should also establish a tax on PFAS manufacturers to defer the full cost of testing, filtration, and disposal for water utilities to help deal with impending liability issues.

Require DOD-Funded Remediation of PFOS and PFOA

For the past 50 years, the Department of Defense has used fire-fighting foam containing PFOS and PFOA. These chemicals have contaminated the groundwater in and around nearly 700 military bases and counting, groundwater that often serves as the source of drinking water for the bases and surrounding towns. Without mandating that the DOD clean up PFOA and PFOS, cities and states could be forced to pay the cleanup fees at a time when many are struggling with the financial fallout from the COVID-19 pandemic. While there are many sources of PFAS contamination, DOD has some of the most obvious ones and could spearhead the cleanup efforts to pave the way for more widespread efforts to come.

Legislative Action

Congress should direct the secretary of defense to develop and implement a plan to remediate PFOS and PFOA contamination on all DOD sites and all neighboring properties. It should include DOD fully funding the installation, maintenance, and replacement of water filtration systems on bases and in communities where a military site contaminated the drinking water. Federal remediation standards should be a floor—not a ceiling—and if a state's standards are stricter, then DOD should remediate to the state's standards instead.

Make Water More Affordable and Accessible



While many take high-quality drinking water and wastewater services for granted, two million in the US—low-income people, people in rural areas, people of color, tribal communities—live without running water or basic indoor plumbing. Many more live without wastewater services or adequate stormwater protection. Millions of low-income people and working families technically have access to drinking water and wastewater services but cannot afford to pay their water bills. When water bills are unpaid, utilities can shut off services. In 21 states, a parent’s inability to provide running water in the home can be considered “child neglect,” and children can be separated from their parents and sent to foster care indefinitely.³⁵ Unpaid water bills can also lead to home eviction and foreclosure—either because water bills are included in a tenant’s rent or because unpaid water bills can allow a lien on a customer’s property tax, which, if unpaid, can lead to foreclosure.

As critical as they are, clean, safe, and reliable water and wastewater services are not free. In fact, many utilities face a catch-22: they are operating at a deficit and need to raise rates to reflect the true cost of water while being reluctant to raise rates because their lowest-income ratepayers cannot absorb the additional cost. Many states also require public utilities to charge uniform rates to all customers, so the revenue collected from some ratepayers cannot be used to support aid programs that reduce the bills of low-income customers. The COVID-related shutdowns of local economies coupled with skyrocketing unemployment have led to an even greater loss of revenue and utilities’ inability to make ends meet.

To make water more affordable and accessible, the federal government should:

- **Expand and improve the Low-Income Household Drinking Water and Wastewater Emergency Assistance Program.**
- **Provide technical assistance to utilities for customer assistance program (CAP) operations and equitable rate design.**
- **Increase funding for places too remote for centralized infrastructure.**
- **Revamp census questions on water access and affordability and centralize federal data.**
- **Conduct equity assessment and mapping.**

Expand and Improve the Low-Income Household Drinking Water and Wastewater Emergency Assistance Program

Water affordability is a growing concern as utilities, states, and local governments balance the need to ensure all their residents have access to affordable drinking water and wastewater services. The reality is that they require sufficient revenue to protect public health and modernize their aging infrastructure to meet increased demands and withstand a changing climate. In general, water service is affordable for most people in the US, but in every community, rates impose burdens on vulnerable populations, including low-income, elderly, and disabled residents, among others.

Utilities in cities and towns with a high proportion of low-income residents, those with declining populations, and those in rural areas all struggle to protect public health while keeping rates affordable for those who need it most. This outsized burden often causes people in low-income households to make difficult tradeoffs between paying their water bills, rent, medical expenses, and other debts. Congress created the Low-Income Household Drinking Water and Wastewater Emergency Assistance Program in late December 2020 as part of COVID-19 relief.³⁶ This onetime infusion of funds is very much needed, but Congress should do more to ensure that clean, safe, and reliable water and wastewater services are available to all. Committing to a Low-Income Household Drinking Water and Wastewater Emergency Assistance Program for the long-term and robustly funding it will help reduce the costly burden weighing down struggling utilities and water customers alike. Low-income people in the US are required to make difficult decisions about how to stretch limited resources each month; deciding whether to pay for water and wastewater services should not be one of them.

Legislative Action

Congress should make the new Low-Income Household Drinking Water and Wastewater Emergency Assistance Program permanent in the annual appropriations process and expand its funding level at least into parity with comparable programs such as the Low-Income Home Energy Assistance Program (LIHEAP).

Provide Technical Assistance to Utilities for CAP Operations and Equitable Rate Design

Utilities in low-income cities, rural areas, and jurisdictions with declining populations struggle to keep water affordable while funding the infrastructure needs to protect public health and comply with regulations, let alone adequately prepare for a changing climate. Yet affordability is not just a challenge in poor cities; in virtually every US community, there are some vulnerable populations—including elderly, disabled, and low-income residents—who struggle to pay their water bills.

A study by The Water Research Foundation found that under current rate structures, about 15 percent of customers nationally are unable to pay at any particular time, and in some jurisdictions, that can be much higher.³⁷ Several water and wastewater utilities across the country have developed customer assistance programs (CAPs) that use bill discounts, flexible terms, special rate structures, and other means in an effort to help financially constrained customers maintain access to water systems. These programs help customers retain or restore access to crucial water services and avoid penalties and fees while improving utilities' financial health by saving on administrative and legal costs incurred from debt collection and service termination/reconnection.³⁸

The process of designing and implementing a CAP will differ for every utility based on the type of program needed for its population. Utilities may face legal and regulatory barriers to specific types of programs and communication challenges to help the community understand these programs. Technical assistance is needed, especially for smaller, lower-capacity utilities to analyze options, establish the programs, train staff, and measure success. Even in places where utilities already have CAPs, some are not fully utilized. Federal assistance could help utilities simplify access to programs and ensure they work better for affected communities.

While customer assistance programs are useful, short-term fixes to keep customer debt from piling up, they are not permanent, long-term solutions for affordability. Part of the solution will require utilities to reform their underlying rate structure without explicit reference to income, to have rates that are less regressive and more progressive (e.g., inclining block rates or reducing reliance on fixed charges).³⁹

Legislative Action

Congress should create a program to provide technical assistance grants for water utilities to create and administer CAPs. There should be a preference for funding smaller, lower-capacity systems and systems with higher percentages of low-income or community of color neighborhoods. Technical assistance should also be provided for utilities to design more equitable rate structures within the confines of what is allowable under state law.

Increase Funding for Places Too Remote for Centralized Infrastructure

The current regulatory and funding framework favors centralized infrastructure. Unfortunately, many communities are too small and remote to support centralized drinking water and wastewater systems, while other communities have environmental conditions that make centralized systems prohibitively expensive. These are just a few reasons that more than two million people in the United States do not have access to drinking water and wastewater services at home. Other communities may have the infrastructure in place but do not have the funding base to adequately maintain or replace centralized systems.

Legislative Action

Congress should increase funding for the Clean Water and Drinking Water State Revolving Funds and USDA well and wastewater programs, with an additional set aside for small-scale drinking water and wastewater systems. This could include: community water kiosks, decentralized water reuse (such as rainwater harvesting and graywater systems), microgrids, and remote monitoring (among other emerging technologies and processes) in rural and underinvested communities where geography or population size make centralized systems technically or financially unfeasible. Congress should further direct the EPA to create standards and fund technical assistance to ensure the decentralized systems are appropriately staffed, safe, efficient, maintained, and that community members take the lead in designing the system that is right for their community.

Improve the Gathering of, and Centralize, Federal Water Access Data

The US Census Bureau's American Community Survey (ACS) is the only national data set on water access, and it has significant limitations—for example, it does not ask whether water service is affordable or reliable or whether households have wastewater services. Improving the health and well-being of the millions of people without safe drinking water, modern plumbing, and wastewater service cannot begin if the extent of the problem is unknown.

Legislative Action

Congress should expand federal data collection by:

- Adding the following questions to the American Community Survey:
 - What kind of wastewater disposal system is a household connected to (central sewer, decentralized wastewater treatment system, or other/not connected to a system)?
 - What kind of drinking water source is a household connected to (municipal, private well, or other/not connected to a system)?
 - Does a household have a tap, toilet, and shower inside the home?
- Expanding the American Housing Survey (AHS) to include more extensive sampling in rural areas.
- Directing EPA to collect data on affordability and shutoffs from water and wastewater systems.

Executive Action

The USDA and EPA should jointly analyze all currently available data and submit a report to Congress with recommendations on how to address the water and wastewater access gap with proposed legislative actions. As new questions are adopted and data collected, the USDA and EPA should update their analysis and recommendations.

Conduct Equity Assessment and Mapping

Communities that do not receive clean, safe, and affordable water and wastewater services can exacerbate inequities by putting stress on both physical and mental health, child development, and economic mobility. These effects are cumulative and compounded by underlying poverty and community-wide resource constraints. Gathering, mapping, and reporting data on water quality and affordability, overlaying the data from vulnerable populations, as well as comparing best practices with other similar utilities across the nation can help utilities to fully evaluate the level of water equity in their service areas. The intersecting impacts of climate change must be considered and mapped, as projected changes in precipitation and temperatures will further exacerbate water-related inequities in many areas, increasing the number of people at risk. To recover stronger, communities must address today's challenges and adequately prepare for future shocks.

To help federal agencies understand and define the equity problem, executive branch agencies should develop and implement an economic and racial equity screening tool and require all federal agencies to systematically examine how different racial and income groups will likely be affected by a proposed action or decision. This tool will also serve as a repository of standardized neighborhood-level data on public health metrics, income and wealth, exposure to environmental hazards, climate risks and vulnerabilities, access to jobs, education, recreational space, and other critical outcomes. This should further include an evaluation function to be able to assess changes in actual equity outcomes after a project or action has been implemented. In addition, the screening tool will enable agencies to identify communities and neighborhoods most impacted by past actions and unjust practices, and those where agencies should prioritize investments in affordable, accessible infrastructure.

This tool should be used to enhance other existing agency processes. An example of this would be the environmental analysis required for all major federal actions under the National Environmental Policy Act.⁴⁰ The tool could assist with an assessment of a proposed project's equity impacts from the earliest stages of project planning and development, through implementation. The tool could also help to inform agency cost-benefit analysis models that are used as part of the rulemaking process or to support decisions for the distribution of federal grants and loans after considering equity benefits and the costs of inequity. This builds on the economic theory and research into how inequity can exacerbate political corruption and crime, as well as impede economic growth. This should include requirements to evaluate equity as part of the selection criteria for all federal discretionary grant, loan, and loan guarantee programs.

Executive Action

The EPA should lead the federal family by conducting an analysis and developing an equity assessment and mapping tool to better support decision-making. This tool should help inform where federal investments are going and help states do the same for the funding they control. The EPA should also develop training for states on how to adopt and use this tool.

Make Water Smarter



Modernization in the water sector is much needed to close current gaps, prepare for future needs, and safeguard against all types of shocks, foreseen or otherwise. The steady decline in federal investment in water infrastructure over the last 40 years has left the burden for modernizing largely on local governments, many of which are already cash-strapped and unable to take on the upfront investment needed.⁴¹ In the United States, clean, safe, resilient, and affordable water is necessary for the well-being of every person. A modern water infrastructure system is also essential to the commercial and industrial sectors to improve competitiveness and fuel economic growth.

The water sector is understandably risk averse. Minor changes can have big, cascading effects on the health and safety of the public, economic activity, and the environment. There is significant risk involved in taking on new approaches. The US will need to support research and innovation, as well as leverage the private sector and academia, to solve current challenges with new technologies and methods. Moreover, the water sector needs real leadership in Washington, DC, to create a comprehensive modernization plan that ensures inclusiveness and resilience and supports all sectors. With success stories across the energy and transportation sectors, it is time to apply proven regulatory, policy, and financial incentives to modernizing the nation's water systems.⁴²

To make water smarter, the federal government should:

- **Establish an assistance program to aid utility modernization.**
- **Establish a national Internet of Water network.**
- **Create a research and development (R&D) program supporting innovation in the water sector.**
- **Expand and improve federal efforts to develop the water workforce.**

Establish an Assistance Program to Aid Utility Modernization

Conventional upgrades to water infrastructure are expensive, disruptive, and often slow. Proven digital, data-driven solutions are available to modernize water networks at lower up-front cost, lower ongoing operating cost, and with improved delivery of safe and reliable water supplies. A federal assistance policy that places a premium on implementing next-generation water technologies would modernize both rural and urban water infrastructure affordably, benefitting public health, economic recovery, community access to safe water and wastewater, and improve resilience. Federal assistance to support the upgrade of water infrastructure would ensure investments help build systems that plan for the future with the flexibility to adapt to changing conditions or address unforeseen shocks such as pandemics.

The 2009 American Recovery and Reinvestment Act made significant investments in modernizing the electrical grid. These investments helped the industry accelerate the deployment of advanced technologies that increased grid reliability and efficiency while reducing costs. Utility consumers can now better manage their energy consumption and save money with easier access to their own data, and utilities work with a smaller environmental footprint, reduced peak loads, and lower operational costs.⁴³ A public policy to advance the next generation of water technology will be critical to future public health infrastructure. It could reduce the costs of providing such services and meet the challenge by integrating smart water technologies into traditional water infrastructure responses.

Legislative Action

Congress should create a new grant program to support water utilities' effort to develop and implement smart water infrastructure programs. This program should enhance the digital information capabilities of utilities to improve real-time decision-making about water supply, wastewater, and stormwater collection systems. The program should focus on accelerating the implementation of technologies that improve the efficiency of physical operations and deliver real-time data, allowing for interactive decision-making. Technologies should also enhance or establish system automation and remote monitoring of water and wastewater systems' performance, asset management, and extended life cycles. The program should also set

aside funds for technology improvements at smaller systems and technical assistance in deploying technology modernization at smaller systems.

Establish a National Internet of Water Network and Water Data Modernization Program

Many of the challenges the water sector faces are regional or multi-state in scope, such as the use of multi-jurisdictional aquifers in the West, interstate compacts for sharing and managing surface water resources, catastrophic flooding in the Midwest, coastal restoration and resilience in the Gulf South, or nutrient pollution caused by agriculture runoff in source water, such as in the Great Lakes or the Chesapeake Bay. Unfortunately, too much of the data to track these challenges are in formats unique to the entity collecting it—and frequently it exists in legacy IT systems developed in the early 2000s or even the 1990s, usually in closed, hard-to-access proprietary formats. Some water data exists only on paper and are still being collected with a pen and clipboard. Many utilities cannot keep up with the technological changes necessary to meet the needs of the 21st century. The lack of online clearinghouses of standardized water-related data, information, and resources, linked by simple internet search technologies, hampers the ability of the sector to innovate and share best practices and learning from industry-wide historical data.

Monitoring of COVID-19 in wastewater is one example of how an online platform sharing data and best practices could bolster industry efforts. As the sector innovates in real time to respond to a public health threat, it would undoubtedly benefit from more accessible and faster information-sharing capabilities. Utilities in the energy sector report data to a centralized database under the Energy Information Administration of the Department of Energy. While a centralized federal database for all public water data would be impractical, the water sector will still benefit from a water data network that accounts for the wide diversity of water data held across multiple jurisdictions in non-standard formats.

Executive Action

The president should direct the EPA to create, fund, and maintain an Internet of Water in partnership with the United States Geological Survey and major water management agencies to serve as a network of clearinghouses for data, research, and best practices surrounding the sector's toughest challenges—current and emerging contaminants, equity, affordability, climate adaptation and mitigation, integrated planning, public-private partnerships, regionalization, and more.

Legislative Action

Building on the Secure Water Act of 2009, Congress should expand the Department of Interior's WaterSMART and Water Resources Research Institute grants to states, and EPA clean water and drinking water grants and financing mechanisms to target water data modernization efforts specifically. This would help states modernize their data on water quality, water availability, and water use. As states modernize their legacy enterprise data systems, the legislation should include targeted funding for states to use as technical assistance for utilities that need help to transition to new, modern data reporting systems. In addition, the EPA should create a new program for direct grants to local municipalities and utilities to help reduce the cost of collecting and reporting additional monitoring and compliance data.

Create an R&D Program Supporting Innovation in the Water Sector

Several factors inhibit the water sector from dedicating significant resources to R&D. Primarily, underinvestment at the federal level has meant that the water sector struggles to keep up with operations and maintenance, let alone proactively invest. This is even more acute with smaller systems, which often do not have the staff, financial resources, capacity, or economies of scale to test and adopt technological advancements. Further, the risk-averse nature of the water sector leaves little room to test new technologies and start pilot projects.

This program would have widespread benefits in every sector of the economy. Industrial, commercial, and residential users alike could see a decrease in rates with increases in their efficiency. Public health and the environment could benefit from simpler and more cost-effective ways to meet regulatory requirements under the Safe Drinking Water Act and Clean Water Act. State and local governments across the US would benefit from easier, more efficient, and more cost-effective ways to provide clean, safe, reliable, and affordable water.

Legislative Action

To encourage greater efficiencies and higher productivity in the water sector, Congress should create and robustly fund a new program, Advanced Research Project Agency-Water, ARPA-W, that supports research and development within the water sector to mitigate these challenges. ARPA-W would be modeled after Advanced Research Projects Agency-Energy (ARPA-E) and Defense Advanced Research Projects Agency (DARPA), housed at the Department of Energy and the Department of Defense respectively, promoting and funding research and development of advanced energy and defense technologies. ARPA-W would define R&D needs within the sector that are especially high-risk and high-reward and award grants for solutions-oriented projects. Eligible entities could include water agencies, universities, research facilities, and the private sector. ARPA-W should be a shared enterprise between the EPA, USDA, and United States Army Corps of Engineers (USACE) to ensure regulatory compliance across agencies on any new technology or method, as well as support a broad swath of economic sectors. Finally, the program should include information-sharing to the thousands of existing water utilities for adopting new technologies and methods.

Expand and Improve Federal Efforts to Develop the Water Workforce

Roughly one-third of the water workforce is eligible to retire in the next 10 years.⁴⁴ This is creating a potential workforce crisis for the water sector.⁴⁵ This is particularly true in rural communities that may not have adequate staffing to begin with or the qualified people available locally to fill openings. Investing in the water workforce can meet the water industry's critical workforce needs and expand economic opportunities in critical areas across the nation. In 2018, Congress authorized a competitive grant program for workforce development at \$1 million per year for FY19 and FY20, which will train workers to operate and maintain water systems throughout the country, creating pathways to well-paying jobs. With high unemployment in many areas due to COVID-19-related economic shutdowns, this is an opportune time to modernize and diversify the water workforce to meet the challenges of the coming decades.

Legislative Action

Congress should reauthorize and dramatically increase funding for the water workforce development grant program created by Section 4304 of America's Water Infrastructure Act of 2018. It should also create a competitive funding program modeled after programs at the Department of Labor designed to help other industries solve similar challenges. These programs would invest in a targeted internship, apprenticeship, pre-apprenticeship, and post-secondary bridge programs. These placements should be specifically at utilities facing challenges with a high rate of retirees as a percentage of their total workforce, areas with high unemployment, as well as areas with low-income communities, rural communities, and communities of color. They should encourage grant recipients to collaborate with labor unions, community colleges, and other training programs to develop candidates' skills and expertise. They should also encourage recipients to develop and use regional approaches where larger systems work with smaller systems to operate training programs.

Make Water More Resilient



From enlarging capital needs and responding to disasters to keeping water affordable and treating legacy and emerging contaminants, every aspect of running a water system has become more challenging because of climate change. Additionally, climate stress is often felt as water stress, including too much water (flooding from more frequent and stronger storms and sea-level rise), not enough water (drought, decreased snowpack, low river flows) and more polluted water (point and nonpoint source runoff, agricultural runoff, toxic algal outbreaks, fish kills). By addressing climate change, the water sector will be more resilient, and in turn, minimize and mitigate some of the impacts of climate change on communities.

To make water more resilient, the federal government should:

- **Enact an equitable climate and water disaster resilience package.**
- **Incentivize natural infrastructure solutions and resilient water resources management.**

Enact an Equitable Climate and Water Disaster Resilience Package

The Fourth National Climate Assessment (2018) asserts that global warming “is transforming where and how we live and presents growing challenges to human health and quality of life, the economy, and the natural systems that support us.”⁴⁶ It further declares that adaptation and mitigation are imperative “to avoid substantial damages to the U.S. economy, environment, and human health and well-being over the coming decades.”⁴⁷ Much of this transformation and need have to do with water—too much in the case of catastrophic flooding, hurricanes and sea-level rise; too little in the case of severe drought and forest fires; and many times, both of those situations in close temporal or geographic proximity.

Too often the discussion of inequitable climate impacts is lacking, despite the reality that climate-related water disasters hit low-income and communities of color first and worst. Further lacking are corresponding equitable resilience planning and adaptation strategies. Low-income communities and communities of color are more likely to live in low-quality housing, lack insurance to cushion the devastation from fires and floods, and generally have fewer resources to manage the life-upending challenges that come with preparing for, surviving, and recovering from extreme events.⁴⁸ The urgency is clear: we must address climate impacts while working to mitigate the worst of what is to come. In the wake of COVID-19, there is a tremendous opportunity to address historic environmental inequities while kick-starting the economy. Green jobs and policy incentives with positive climate feedback loops can minimize water-related impacts on a warming world. At the same time, federal investment in water sector resilience will help communities thrive and increase national security. Climate change will affect every US citizen or business in some way. Mainstreaming climate considerations into infrastructure decision-making so they are grounded in community and stakeholder input can only improve the nation’s infrastructure. Incorporating equity into the conversation will lead to stronger and more effective infrastructure decisions, and the United States is better off as a more just and equitable country.

Legislative Action

Congress should pass a comprehensive and integrated climate and water disaster resilience package. This package should:

- Focus on rural communities, low-income communities, and communities of color who are disproportionately affected by the climate crisis. It must include equity as a primary goal. The standards should include locally tailored climate adaptation responses that are inclusive, informed by and designed in partnership with local stakeholders, and intersectional in approach.
- Include a significant increase in pre-disaster resilience funding specifically for low-income and communities of color with reduced or waived cost shares. Pre-disaster funding should also become available for communities facing anticipated future events, not just unlocked for communities after disaster strikes.
- Create and capitalize on a Water-Resilient Public Health Fund that allocates federal disaster funding for communities with repeated flooding and failing infrastructure.
- Significantly increase funding, and expand eligibility, for grants to retrofit physical infrastructure owned by utilities, using the latest climate data. Congress should build on programs like the Drinking Water System Resilience and Sustainability program by expanding eligibility to drinking water systems of all sizes (while still reserving a dedicated portion of the funds for small and underserved communities) and establishing a mirror program for wastewater systems of all sizes.
- Provide for climate impact considerations into infrastructure planning and integration of that planning across all types of infrastructure (roads, bridges, dams, ports, electricity sectors). This will mean that the nation is investing for the climate of the future, not the climate of the past.
- Direct the Federal Emergency Management Agency (FEMA) to fund resilience improvements rather than just repairs, with repeat flooding or infrastructure failures when funding is granted after a disaster.
- Provide technical assistance to ensure that communities can access and implement all these new programs.

Incentivize Natural Infrastructure Solutions and Resilient Water Resources Management

Managing floods and sea-level rise, purifying and storing water, recharging aquifers, controlling wildfires, and responding to extremes in ambient air temperature are all important challenges to address in urban, suburban, and rural environments. Typically, the solutions to these challenges are not “one size fits all,” but rather, they need to fit the conditions and local preferences in the specific area. Natural infrastructure relies on soil, landscape, vegetation, and hydrology to accomplish the same things as traditional (or “gray”) infrastructure, sometimes as a decreased cost and often increasing property values (and therefore, federal, state, and local tax revenues) at the same time. In this way, solutions can be tailored specifically to a particular community. Although green infrastructure is widely supported, it is not widely used, particularly in low-income, rural, and communities of color. Often these communities lack staff with the necessary technical expertise and access to capital to finance it and are often hit hardest by natural disasters but would garner the most from the benefits that natural infrastructure can provide.

Resilient water management encourages the water and science agencies of the federal government to work with state and local water managers to plan for climate change and other threats to water supplies. It also requires securing water resources for the communities, economies, and ecosystems so they support all people. This includes collaboration among agencies to enhance climate change science and scale down the data, which will allow better assessment of water system threats and implementation of mitigation strategies. Existing programs like the Clean Water State Revolving Fund, USDA Conservation programs, and US Bureau of Reclamation WaterSMART Grants show promising avenues to accelerate resilient water resources management. USDA programs focus on the conservation of ground and surface water resources, as well as reductions in nonpoint source pollution, including nutrients, sediment, pesticides, and salinity. These programs also provide solutions to resolve water supply reliability, water quality impairments, groundwater recharge, and other water resource concerns.

Executive Action

The administration should sign an executive order to strengthen the implementation of natural infrastructure and task the USDA and EPA to develop a report recommending options to expand natural infrastructure deployment in the US. The administration should also improve technical assistance and federal permitting processes to expand support for natural infrastructure as a compliance measure for Clean Water Act municipal stormwater permits and pollution control permitting on a watershed basis (e.g., as a compliance measure for pollution restrictions under the Clean Water Act). Finally, the administration should prioritize natural infrastructure approaches through programs funded by HUD and the Land and Water Conservation Fund to address structural inequity in low-income, rural, and communities of color.

Legislative Action

Congress should create a national fund for natural infrastructure solutions and resilient water resources management through a combination of grants, loans, and loan guarantees to help communities fund and finance natural infrastructure projects. This fund should include technical assistance for small, low-income, and otherwise disadvantaged communities in both urban and rural areas. Additionally, Congress should increase funding for successful programs like the Clean Water State Revolving Fund and USDA Conservation programs, and US Bureau of Reclamation WaterSMART Grants. Congress should also expand US Forest Service's urban reforestation program and the National Fish and Wildlife Foundation funds for natural infrastructure pilot projects.

Take a Whole-of-Government Approach to Federal Water Management



Water knows no boundaries, yet its protection and management have been sliced and diced over multiple federal, state, and local entities. The United States must take a whole-of-government approach to federal water management, in close cooperation with state and local entities engaged in water management. Water is essential to every sector of the economy, every cabinet agency's mission, every life. Federal agencies must be coordinated, and funding streams must align to advance the policy recommendations in this report so that the nation emerges from the COVID-19 pandemic stronger.

On October 13, 2020, President Trump signed Executive Order 13956, titled "Modernizing America's Water Resource Management and Water Infrastructure."⁴⁹ This executive order codified a Water Subcabinet co-chaired by the secretary of interior and EPA administrator and included senior officials from USDA, the Department of Commerce, Department of Energy, and the Department of the Army. The group is directed to work in coordination with senior officials from the White House Council on Environmental Quality, the Office of Management and Budget, and the Office of Science and Technology Policy to facilitate the efficient and effective management and modernization of water supplies and systems. The subcabinet's initial stated goals are to increase water storage and drought resiliency, improve water quality and source water protection, examine water quality challenges facing minority and low-income communities, improve water data management, plan for large-scale water infrastructure upgrades, and address challenges in workforce development.

While the US Water Alliance agrees with the spirit of this executive order, it can, and must, go further. The executive order lacks an evaluation of federal water management practices with either an equity or climate lens. Both are crucial for responding to current challenges and preparing for the future. There is also a potential issue where this new Water Subcabinet is empowered to designate a "lead federal agency" with decision-making and veto power over the course of water projects. Ostensibly this is supposed to break the logjam that develops when federal agencies (and their missions) are in conflict over a project. But it could allow "infrastructure agencies" like USACE to steamroll other agencies like the EPA and National Fish and Wildlife Foundation, subverting their missions in favor of moving forward with a project. The subversion would also potentially ignore community engagement and comments received by the non-lead agencies.

Executive Action

President Biden should issue an executive order that modifies and expands Executive Order 13956 to align federal agencies on water management and create a new White House Council on Water Policy. The purpose would be to coordinate and streamline the effort to make the water sector more financially secure, safer, more affordable, more modern, and more resilient across all agencies.

This White House Council on Water Policy should be made up of at least the following agency representatives:

- Environmental Protection Agency
- Department of the Interior
- Department of Agriculture
- Department of Labor
- Department Health and Human Services
- Department Housing and Urban Development
- Department of Commerce
- Department of Energy
- Department of Transportation
- Department of Defense (US Army Corps of Engineers)
- Department of Homeland Security
- Office of Science and Technology Policy
- Small Business Administration
- Office of Management and Budget
- Department of the Treasury
- Council on Environmental Quality

The executive order should also create a special assistant to the president for water policy, who will report to the president and establish modernizing the nation's water infrastructure for equity and resilience as a national priority. This person will be responsible for coordinating the White House Council on Water Policy, as well as convening, facilitating, and consolidating external stakeholders' viewpoints, which will inform the policy recommendations of the Council on Water Policy.

Specifically, the Council on Water Policy, and by extension, the special assistant on water policy, should work with White House leads on climate, environment, equity, economic development, and rural matters to identify communities most in need of federal funding. They would address inequitable access to clean, safe, reliable, affordable, and resilient water infrastructure. Further, the council should examine barriers to equitable distribution of federal funding; integrated planning and holistic approaches to infrastructure investment; lead service line replacement; water reuse, recycling, and scarcity; regional and decentralized solutions; public-private partnerships; climate resiliency and adaptation; community engagement; and smart technology adoption and deployment.

Conclusion

Each policy idea in this blueprint is designed to make the water sector a stronger and more equitable force for delivering the positive and resilient change that the new administration and Congress want to see in the world. The global pandemic has brought crisis, but with it is a unique opportunity to either reinforce the old structures of the water sector or build back better in a smarter, more equitable, and more resilient way.

The Biden administration and the 117th Congress will have to begin enacting steps on day one. The administration's four top priorities include responding to COVID-19, catalyzing long-term economic recovery, addressing racial inequality, and fighting climate change. Water is the path to progress in each of these priority areas.

The road ahead will be full of adversity. While the challenges will be immense, the nation can rise above them by instilling a renewed focus on water infrastructure and employing a whole-of-government approach to address the issues laid out in this paper. The US Water Alliance network stands ready to assist and looks forward to working alongside federal agencies and many stakeholders to create a stronger, more resilient, and equitable water future.

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About the US Water Alliance

The US Water Alliance advances policies and programs to secure a sustainable water future for all. Our membership includes water providers, public officials, business leaders, agricultural interests, environmental organizations, community leaders, policy organizations, and more. A nationally recognized nonprofit organization, the US Water Alliance brings together diverse interests to identify and advance common-ground, achievable solutions to our nation's most pressing water challenges. We:

Educate the nation about the true value of water and the need for investment in water systems. Our innovative approaches to building public and political will, best-in-class communications tools, high-impact events, media coverage, and publications are educating and inspiring the nation about how water is essential and in need of investment.

Accelerate the adoption of One Water policies and programs that effectively manage water resources and advance a better quality of life for all. As an honest broker and action catalyst, we convene diverse interests to identify and advance practical, achievable solutions to our nation's most pressing water challenges. We do this through our strategic initiatives and One Water Hub, which offer high-quality opportunities for knowledge building and peer exchange. We develop forward-looking and inclusive water policies and programs, and we build coalitions that will change the face of water management for decades to come.

Celebrate what works in innovative water management. We shine a light on groundbreaking work through storytelling, analysis of successful approaches, and special recognition programs that demonstrate how water leaders are building stronger communities and a stronger America.



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