



Beyond Tight Budgets

2018 Resource Demands Analysis for State
Drinking Water Programs

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Executive Summary

U.S. states and territories (except Wyoming) have drinking water programs that were established to protect public health in their respective localities. Administrators of these programs oversee the water systems and are responsible for ensuring the approximately 150,000 public water systems (PWSs) across the United States comply with the National Primary Drinking Water Regulations (NPDWRs). Over the last decade, state and territorial drinking water programs have seen a tremendous growth in programmatic demands without adequate resources to address those demands.

State and territorial drinking water programs are chronically underfunded, which constrains the ability for state drinking water administrators to protect public health. Federal support from the Public Water System Supervision (PWSS) Program and the set-asides from the Drinking Water State Revolving Fund (DWSRF) have remained flat for the past decade. Meanwhile, inflation has increased states' costs by 20%. Additionally, there are increasing new resource demands from non-regulatory activities, such as post-Flint Lead and Copper Rule oversight (PF LCR), algal toxins, per- and polyfluoroalkyl substances (PFAS), *Legionella*, and the State Drinking Water Information System (SDWIS) Prime application.

Due to the increasing demands from the non-regulatory activities, the Board for the Association of State Drinking Water Administrators (ASDWA) conducted a 2018 State Resource Demands Analysis to better capture the extent of the additional resource demands. The approach for the 2018 analysis was to use the [2013 State Drinking Water Resource Needs Report](#) as a starting point, noting that the 2013 report showed a national funding gap of 38% between available and needed resources for minimum base programs across the United States and a funding gap of 41% for a comprehensive program that would increase public health protection. This funding gap has been compounded by another 20% due to the combination of inflation and flat PWSS funding.

For 2018, ASDWA asked the states to estimate the hours for the additional demands for these non-regulatory activities. Of the 25 respondents, states are experiencing workload increases ranging from 1.1% to 12.5%, with the average workload increase at 4.3%, beyond their current level of activity. The total number of increased hours from the 25 states in this survey was 153,912 hours, which is equivalent to 74 full-time equivalents (FTEs). The results of this study can be extrapolated to estimate the increased demand for all 50 states, by doubling the total number of increased hours. This would lead to a national estimate of increased demand in 2018 of 307,824 hours, or 148 FTEs.

Beyond these non-regulatory activities, new regulations are coming and the additional resource demands on states could be significant. ASDWA estimated, in its [Costs of States' Transactions Study \(CoSTS\)](#), that possible regulatory requirements for Long-Term Revisions to the Lead and Copper Rule (LT-LCR) could increase states' workloads by an additional 10% or more, which could require more than five million staff hours to implement. Adding the existing funding gap in 2013 to inflation and non-regulatory activities and potential LT-LCR yields a total funding gap of 73.3%.

[America's Water Infrastructure Act of 2018](#) increased authorizations for the PWSS grant to \$125 million for FY 2020 and 2021. Even if this amount is fully appropriated this would still leave a significant funding gap. This analysis clearly demonstrates the need for either additional funding or a reallocation of resources. Flat funding combined with increased resource demands threatens public health. This analysis shows the growing demand for state drinking water programs and highlights the need for either additional funding or a reallocation of resources.

Introduction

U.S. states and territories (except Wyoming) have drinking water programs that were established to protect public health in their respective localities. Administrators of these programs oversee the water systems and are responsible for ensuring the approximately 150,000 public water systems (PWSs) across the United States comply with the National Primary Drinking Water Regulations (NPDWRs). Core activities of the primacy agencies include:

- Checking compliance monitoring data as collected by the state water offices (i.e. state offices that oversee the state drinking water programs) and ensuring compliance with the NPDWRs;
- Reporting compliance data to the U.S. Environmental Protection Agency (EPA) through the Safe Drinking Water Information System (SDWIS);
- Working with the public and private water utilities to return to compliance and taking enforcement actions, as necessary;
- Providing technical assistance to PWSs;
- Administering the Drinking Water State Revolving Fund (DWSRF), noting that in some states and territories, a different state agency runs the DWSRF but there are prioritization and coordination efforts required;
- Reviewing plans and specifications for treatment plant and distribution system improvements;
- Reviewing pilot test reports for new treatment technologies;
- Inspecting all PWSs on a regular basis;
- Managing PWS operator certification and state and private laboratory certification programs;
- Managing source water protection programs;
- Managing PWS programs to ensure technical, managerial, and financial capacity for PWSs; and
- Working with PWSs and other state agencies on water system security and preparedness.

Funding for states and territories to fulfill their mission comes from four sources. Two come from the EPA - the Public Water System Supervision (PWSS) Program and DWSRF set-asides. The other two funding sources vary considerably from state to state and include funding from the state's general fund and fees from water systems for plan review, inspections, and more.

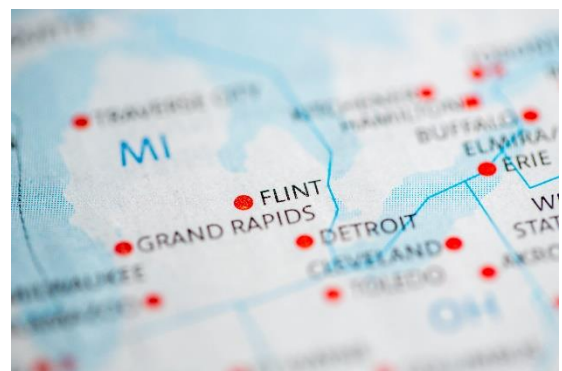
Funding Challenges

Since 2008, [the annual PWSS appropriations from the EPA have stayed flat at around \\$100 million for all states and territories](#) and the effects of inflation, which has increased states' costs by 20% over the past decade, have further stretched the ability of the states to fulfill their mission of public health protection. Beyond the core activities of state drinking water programs, states' resources are being stretched further with the rise in non-regulatory activities, such as post-Flint Lead and Copper Rule oversight (PF LCR), algal toxins, per- and polyfluoroalkyl substances (PFAS), *Legionella*, and the SDWIS Prime application.

The Flint Water Crisis

The Flint water crisis started in 2014 when Flint switched its source of water and became a public health emergency in 2015. On February 29, 2016, [EPA Administrator Gina McCarthy sent letters](#) to each governor and public health commissioner asking them to re-examine what was being done in their state to reduce lead in drinking water. Each state responded with a letter summarizing the additional actions being taken post-Flint.

Events in Flint concerning lead in drinking water increased public concerns about drinking water quality in general, not just for the LCR. The increase in investigations for water quality complaints and requests for information from the media, other governmental entities, public information officers, and local elected officials have doubled, tripled or even quadrupled for some states.



State drinking water agencies continue to have to reassure the public that what they are doing is not causing serious health implications for all the regulated (and un-regulated) contaminants. An unexpected outcome post-Flint, which has compounded the challenges of the crisis itself, was the public perception that government and drinking water programs weren't to be trusted – this resulted in a very heavy workload in defending the programs to internal and external stakeholders.

Lead Testing in Schools and Child Care Centers



Across the nation, school districts expect state drinking water programs to assist schools in sampling and remediating for lead for those states that do not have state legislation. EPA's [grants for lead testing in schools and child care facilities authorized under the Water Infrastructure Improvements for the Nation \(WIIN\) Act](#) will also increase primacy agency workload in those states that accept the federal grants for additional un-regulated work.

Algal Blooms

Later in 2014, an algae bloom in Lake Erie led to a ["Do Not Drink" advisory for Toledo, Ohio](#). EPA responded with a [series of actions](#) that included health advisories for total microcystins and cylindrospermopsin and guidance for states' and water systems' responses to an algal bloom. In the summer of 2018, the [City of Salem, Oregon had a similar advisory](#) due to an algal bloom in its water supply reservoir. Both [Ohio](#) and [Oregon](#) have developed their own regulations in response to these blooms, and several other states have also increased their efforts to address the growing threat of algal toxins.



Chemical Contaminations



The understanding of potential drinking water impacts from per- and polyfluoroalkyl substances (PFAS) has significantly increased over the past decade. This class of chemicals started to get publicity in 2001 and 2002 due to water contamination from the Washington Works Plant located outside of Parkersburg, West Virginia, on the West Virginia/Ohio border. The class-action lawsuit against DuPont due to water contamination at Little Hocking Water District and Lubeck Public Service District generated additional publicity. In 2006, DuPont and other manufacturers such as 3M, agreed to principally phase out the production of two common PFAS, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS).

Due to escalating concerns, six PFAS compounds were included in EPA's final [Third Unregulated Contaminant Monitoring Rule \(UCMR3\)](#). UCMR3 monitoring occurred between January 2013 and December 2015 and included two to four quarterly samples at mostly large water systems throughout the country using EPA Method 537. As

typical for the UCMRs, EPA regularly released the UCMR3 monitoring data, starting in late 2013. The UCMR3 data became more significant in 2016 when EPA lowered its 2009 Provisional [Health Advisories \(HAs\)](#) for PFOA from 400 parts per trillion (ppt) to 70 ppt and for PFOS from 200 ppt to 70 ppt, as well as setting a combined HA level of 70 ppt for the sum of PFOA and PFOS. Since 2016, the PFAS problems have continued to grow. States are grappling with new contamination sites on a regular basis and with decisions on what needs to be done in a timely manner to protect public health – with limited guidance from EPA.

Legionella

Legionella is now the leading cause of [disease outbreaks](#) caused by waterborne pathogens. Recognizing the potential impact of *Legionella* on susceptible populations, both the Veterans Administration and the [Centers for Medicare and Medicaid Services](#) require water management plans (including the potential for water treatment) at health care facilities under their control. Outside of healthcare facilities, large office buildings, hotels and resorts, and other commercial facilities are susceptible to *Legionella* growth in their premise plumbing and have no requirements for monitoring or mitigation. Although there are no direct *Legionella* regulations under the Safe Drinking Water Act (SDWA) for states to administer, if these facilities install treatment, they can be subject to requirements for monitoring, operator certification, and more under the SDWA. The states must determine how all the existing requirements apply, and then take appropriate action, with limited guidance from EPA on this issue. Even if facilities do not install treatment, several facilities may come to the state drinking water program with questions and requests for assistance.



Safe Drinking Water Information System

Information about public water systems (PWSs) and their violations of drinking water regulations is stored in EPA's Safe Drinking Water Information System (SDWIS).

In May 2010, EPA presented its modernization plans for all Federal data systems; including changes to SDWIS. The SDWIS modernization plan consisted of a series of projects designed to deliver new system capabilities; with the two versions of SDWIS (FED and STATE) unified into a single system (SDWIS Prime) housed in a centralized location (EPA's National Computing Center - NCC) to facilitate improved information exchange between primacy agencies, regulated entities, EPA Regions, and EPA Headquarters. The modernized SDWIS would rely on the use of web-based services to allow primacy agencies to submit and interact with the centralized database.

Since the original 2010 discussion, many states have invested significant resources into this effort; providing input into SDWIS Prime development through participation in project governance and testing groups. Complicating matters, the development process itself has been stopped, revamped and restarted which has led to considerable project delays and a need for extra vigilance by states. Additionally, uncertainty about the timing and resources needed for the eventual transition to the new system has further complicated states' planning processes.

Resource Demands Analysis

Due to the increasing demands from these non-regulatory activities, the Association of State Drinking Water Administrators (ASDWA) Board conducted a 2018 State Resource Demands Analysis to better capture the extent of the additional resource demands. This analysis used the [2013 State Drinking Water Resource Needs Report](#) as baseline data, with states estimating 2018 hours for these additional demands.

Baseline Resources for Regulatory Activities

The U.S. Environmental Protection Agency (EPA) partnered with ASDWA to conduct the survey of the states included in the 2013 Report. This effort was supported by a State Resource Needs Advisory Panel (SRNAP) consisting of representatives from ten state drinking water programs (Connecticut, New York, New Jersey, Pennsylvania, Kentucky, Indiana, Oklahoma, Montana, Colorado, and California) and ASDWA staff. This report estimated the number of state hours and full-time equivalents (FTEs) needed for the various state drinking water program tasks while categorizing the states' programs based on the number of water systems of various sizes for the respective states. Data was used from Public Water System Supervision (PWSS) grants, Drinking Water State Revolving Fund (DWSRF) set-asides, and the results of the 2011 ASDWA survey of state general funds and fee revenues. The Cadmus Group, Inc. (EPA's contractor) developed a model from this data for the years 2012-2021. The model was further revised as necessary by ASDWA staff and the Advisory Panel to better reflect state experiences.

The model produced an estimate of resource needs known as the minimum base, which refers to programs mandated by the Safe Drinking Water Act (SDWA) or an associated EPA primacy requirement. The model also produced an estimate for a comprehensive drinking water program, a program that includes the minimum base and any additional activities undertaken by states to meet the public health protection goals of the SDWA. These additional activities included: expanded emergency response planning, efforts to address emerging contaminants, and initiatives to minimize threats of contamination to ground and surface water. Issues outside the scope of the SDWA, such as issues with private wells or bottled water, were excluded from the model.

Using the data and analysis outlined above, national estimates of funding and FTEs were developed for implementing the minimum base program and the comprehensive program. Tables 1 and 2 summarize the states' funding and personnel gaps in fiscal year (FY) 2013.

Table 1: National FY 2013 Funding Estimate*

	Available Resources (from all sources)	Needed Resources (from all sources)	Funding Gap	Percentage Funding Gap
Minimum Base Program	\$385 million	\$625 million	\$240 million	38%
Comprehensive Program	\$440 million	\$748 million	\$308 million	41%

*Based on needs identified in the 2013 State Drinking Water Resources Report

Table 2: National FY 2013 Estimate of Full-Time Equivalents (FTEs)*

	Available FTEs	Needed FTEs	Personnel Gap	Percentage Personnel Gap
Minimum Base Program	3,100	5,400	2,300 FTEs	43%
Comprehensive Program	3,800	6,500	2,700 FTEs	42%

*Based on needs identified in the 2013 State Drinking Water Resources Report

As shown in the tables above, the model estimated gaps in funding and personnel needs for both the minimum and comprehensive program scenarios. It should be noted that the model considered two categories of costs: capital costs and state staff costs for implementing existing and future regulations. Capital costs include costs of computers, database improvements, travel, software, water sampling, source water protection, and fleet costs. Staff costs are the staff hours to implement the program.

An important consideration in looking back at the 2013 Report is that no states are currently operating at the minimum base program due to a lack of funding. Every state drinking water program is currently constrained by

limited funding, and the additional demands from the non-regulatory activities is exacerbating the states' ability to provide proper oversight of over 150,000 public water systems.

Additional Resources for Non-Regulatory Activities

ASDWA used the spreadsheet format from the 2013 Report, with the 15 regulatory categories for tasks for the state programs, as the basis for the 2018 analysis. These categories included:

- Program Administration
- Enforcement Response Policy
- Future Regulations
- Capacity Development
- Operator Certification
- Public Notification Rule
- Consumer Confidence Report Rule
- Chemical rules (including phase II/V and arsenic)
- Radionuclides Rule
- Lead and Copper Rule
- Disinfectants and Disinfection Byproducts Rule
- Surface Water Treatment Rules
- Ground Water Rule
- Sanitary Surveys
- Revised Total Coliform Rule

The spreadsheet was pilot tested with the ASDWA Board in June-July 2018. After the pilot test, a survey was sent to all state and territorial drinking water programs requesting an estimate of the number of hours spent on the non-regulatory activities in 2018. The resulting estimate of hours spent on non-regulatory activities in 2018 provide the foundation for a robust national estimate. Twenty-five states responded to the survey, representing a mix of very large, large, medium, small, and very small states. These size categories are based on the magnitude of the state drinking water program, type (Community Water Systems, Non-Transient Non-Community Water Systems, etc.), geographic size, and population.

The spreadsheet results are divided into two categories - the numbers projected for 2018 from the 2013 study, as well as the estimated hours in 2018 for the non-regulatory activities. The estimates from the 2013 study for 2018 are likely to be under represented as states have not been able to reach 2018 resources that were estimated in the 2013 study. The increases described for the additional non-regulatory activities are likely be an even larger percentage of the total number of hours than the graphs indicate below. A wide range of increased hours was seen across all the participating states. The spread of hours ranged from an increase of 1.1% to 12.5%, with the overall average percent increase in workload being 4.3%.

Figures 1 to 4 demonstrate the findings. Figure 1 shows the average number of hours spent on the non-regulatory activities per state size by topic in calendar year 2018. The "Other" category refers to efforts such as water quality management, *Legionella*, and regulatory development. Figure 1 shows that the very large and large states spend the vast majority of their non-regulatory hours on post-Flint Lead and Copper Rule. Figure 2 depicts the average percent workload increase by state size in calendar year 2018 and shows that states that responded and fell into the "Small" category are experiencing the highest average percent increase.

Figure 3 represents the total amount of hours for each non-regulatory activity of the 25 respondents to our survey. Post-Flint LCR activities represented the largest increased demand closely followed by SDWIS Prime and other (*Legionella* other non-regulatory activities). Figure 4 displays the average percent workload increase, with most states within the 3-5% range. However, some states are seeing increases higher than 10% of their current workload.

Figure 1: Hours Demand Per State Size by Topic for 2018

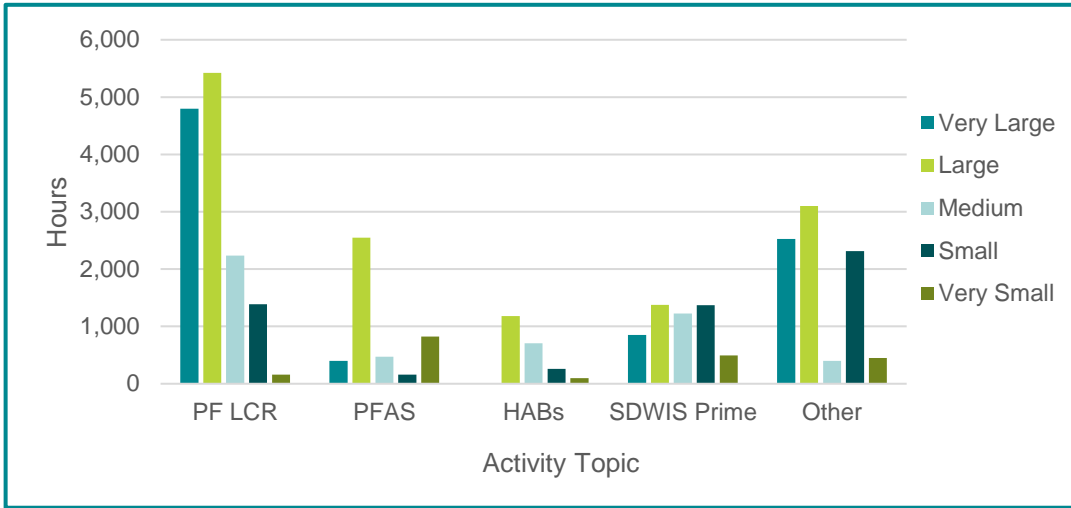


Figure 2: Percent Workload Increase by State Size for 2018

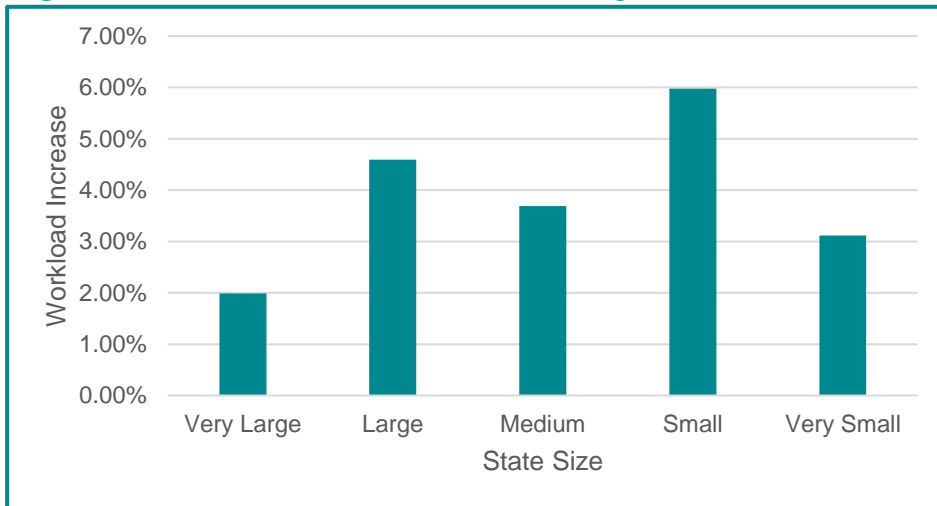


Figure 3: Increased Hours Demand for Non-Regulatory Activities by Topic for 2018

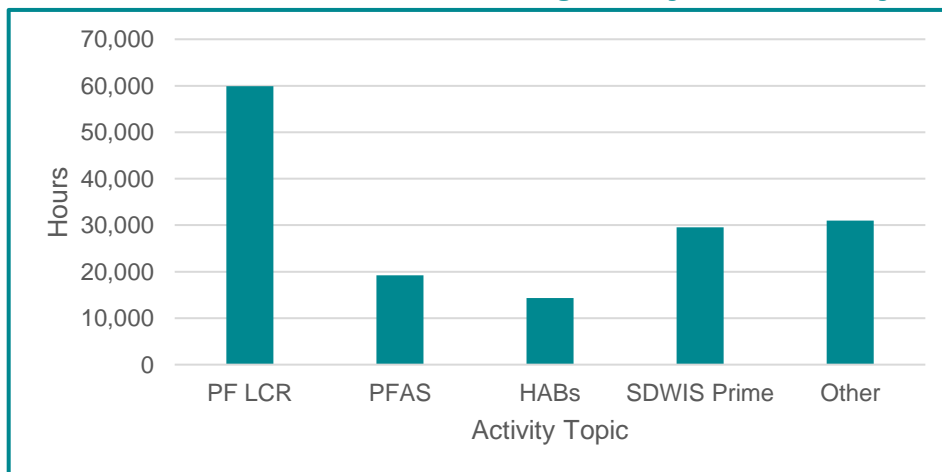
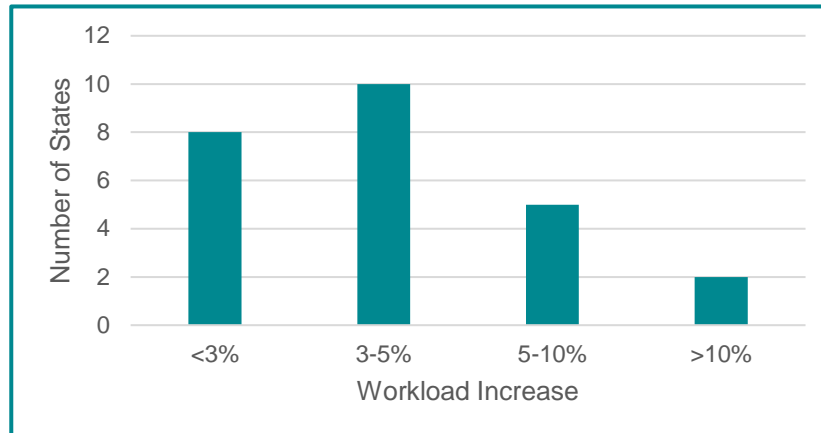


Figure 4: Percent Workload Increase for States



Conclusions

The 2013 Report showed that state programs were financially stressed at that time, and those stresses continued throughout the 2013 Report's estimates for each calendar year through 2021. The 2018 Analysis shows that the non-regulatory drivers are exacerbating the ongoing resources demands on states. Of the 25 respondents, states are experiencing workload increases for 2018 ranging from 1.1% to 12.5%, with the average workload increase at 4.3%. These percentages are based on workload that is already stretched, and critical drinking water program activities are being delayed or not being conducted in order to satisfy the increased demands from these non-regulatory activities.

The total number of increased annual hours for 2018 for the 25 states in this survey was 153,912 hours, or 74 FTEs. The results of this study can be extrapolated to estimate the increased demand for all 50 states, by doubling the total number of increased hours. This would lead to a national estimate of increased annual demand on states' resources in 2018 of 307,824 hours, or 148 FTEs.

States are continually being asked to be proactive and manage an increasing amount of non-regulatory activities, spreading their already dwindling resources thin. Without additional resources, states are forced to take efforts away from existing regulatory programs to manage the non-regulatory tasks that are being added to their workload. Flat funding combined with increased resource demands threatens public health.

This analysis shows the growing demand for state drinking water programs and highlights the need for either additional funding or a reallocation of resources.



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