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CALIFORNIA URBAN WATER AGENCIES

We Can Act NOW to Restore Safe and Reliable Drinking Water to Californians

Residents of a trailer park near Fresno are drinking water known to have unsafe water quality. (AP Photo/John Locher) (The Associated Press)

Californians receive drinking water from 1) public water systems, 2) state small water systems, and 3) private domestic wells. Nearly a million people receive unsafe drinking water from failing public water systems alone. The challenges are multi-faceted and, while CUWA and others have been working various aspects of the problem, progress has been slow.

Now is the time for immediate action. CUWA acknowledges and appreciates State efforts to address accessibility, including the assessment of needs and funding options. CUWA aims to complement and support State efforts, leveraging our collective knowledge and experience to advance technical and operational strategies that dovetail with State strategies. By acting now, we believe we can address a substantial part of the problem, achieving near-term progress by focusing on severely impacted public water systems and informing future solutions.

ADDRESS THE ROOT CAUSES OF FAILURE. Systems fail when communities are unable to keep up with expanding challenges to provide safe drinking water. Root causes include inadequate treatment technology, operational issues, and insufficient technical, managerial, and/or financial (TMF) capacity.

BREAK THE CYCLE. Taking action to address failing systems and prevent new unsustainable systems can break the cycle of unsafe drinking water.

CREATE SYSTEMS FOR THE FUTURE. Solutions for today and emerging concerns of the future require new approaches to achieve lasting, cost-effective, reliable water service and ensure water security for our communities.

We can break the cycle of failing systems and address root causes by taking action. Here's how:

1 IDENTIFY WHICH SYSTEMS TO ADDRESS FIRST

A phased approach to address affected communities provides the greatest early impact. Though more than 1,100 small public water systems experienced water quality violations in the past five years, significant progress can be made by initially targeting a subset of the most at-risk systems to restore water quality and inform next steps.

2 DEVELOP A STRATEGY TO ACHIEVE COMPLIANCE

CUWA's strategy is to leverage new technologies, operational strategies, and partnerships to create sustainable systems for the future. Through incremental implementation, we can more quickly address a subset of failing systems and reach the rest over time.

3 PREVENT NEW, UNSUSTAINABLE SYSTEMS FROM FORMING

Though existing legislation helps to "stop the bleeding," we can improve implementation, strengthen requirements, and incorporate proposed new systems into a broader framework with sufficient rate base, technical capacity, and managerial capacity to be sustainable.

1 IDENTIFY WHICH SYSTEMS TO ADDRESS FIRST

Focus on the most severely impacted systems.

Nearly 700,000 people are served by small public water systems with one or more water quality violation(s) over the last five years. Of these, 150 systems collectively serving over 137,000 people have had persistent violations, defined for the purpose of this analysis as health-based violations in 12 or more quarters (2013-2017). Persistent violations are an indicator of failing systems, and CUWA has focused on this subset as a place to start. Our goal is to create early actions, learn as we go, and test and refine workable models.

First address systems serving the highest population for early impact.

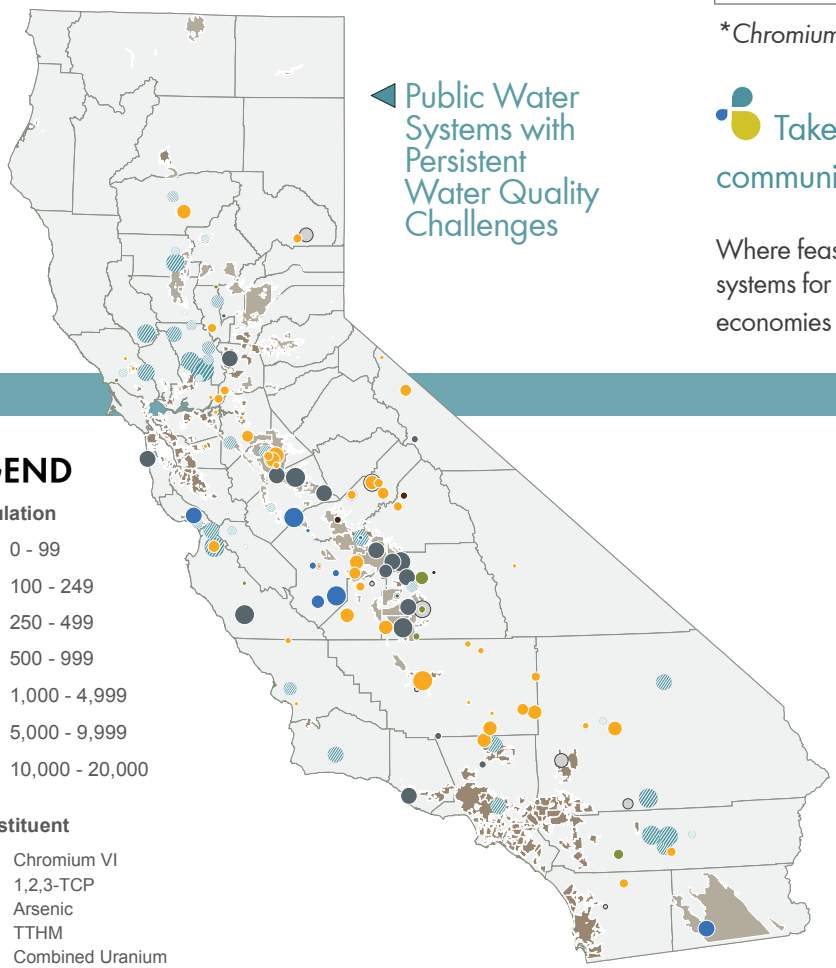
Eighty percent of the population affected by persistent violations can be addressed by initially targeting 20 percent of these systems (those with ≥200 connections). At the same time, technical approaches applicable to smaller systems can be explored to address the remaining 80 percent of the systems.

Number of Connections	Number of Systems with Persistent Violations	Population Impacted
≥200	33	111,700
<200	117	25,800
TOTALS*	**150**	**137,500**

**Chromium VI violations not included (no current MCL).*

Take advantage of proximity to address communities in need.

Where feasible, regionalize or consolidate separate, adjacent systems for economic viability, long-term sustainability, and economies of scale.



Public Water Systems with Persistent Water Quality Challenges

Notes:

Includes small public water systems (<10,000 people served), grouped by city.
Boundaries shown are approximate. Data sources: Esri, Garmin, GEDCO, NOAA NGDC, and other contributors. Irrigation district boundaries provided by USBR and DWR (2003).

Definitions:

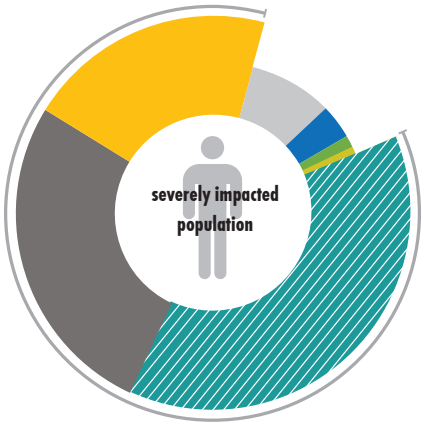
Public water systems have 15 or more service connections and/or serve at least 25 people per day at least 60 days out of the year. Public water systems are regulated by the U.S. EPA and State Water Resources Control Board (SWRCB).

State small water systems have at least 5, but no more than 14 service connections, and are regulated at the local level.

Unregulated systems have fewer than 5 connections and are predominantly domestic wells.

Look ahead to emerging water quality challenges to create lasting solutions.

New and emerging constituents will pose further challenges for many public water systems. Although 1,2,3-TCP wasn't regulated until 2018, State data show many systems persistently exceeding the current MCL in years past. Furthermore, with a new MCL for chromium VI pending, and others on the horizon, dozens of public water systems are at risk of non-compliance.



Types of Water Quality Challenges for Public Water Systems

Consitituent; Population Affected

- Chromium VI; 91,600
- 1,2,3-TCP; 64,400
- Arsenic; 48,900
- TTHM; 21,100
- Combined Uranium; 8,600
- Nitrate; 3,000
- Other; 2,200

Data Sources:

CUWA's analysis included public water systems (community water systems, schools, and daycares) serving <10,000 people. Sources included the Human Right to Water (HR2W) database, total coliform violations from the U.S. EPA Safe Drinking Water Information System and concentrations of 1,2,3-TCP and chromium VI from the SWRCB Electronic Data Transfer Library. Systems shown as affected by 1,2,3-TCP and chromium VI had concentrations exceeding 5 parts per trillion or 10 parts per billion, respectively, in 12 or more quarters between 2013-2017.

2 DEVELOP A STRATEGY TO ACHIEVE COMPLIANCE

Build upon ongoing work by others to enable systems that return to compliance to remain in compliance.

Ensure systems are sustainably sized.

As water quality challenges evolve, greater and more focused technical expertise is needed to deliver safe, reliable drinking water. Regional community water systems can leverage economies of scale and expand capacity. Furthermore, systems need a reasonably-sized rate base to stay sustainable. New or reconfigured water authorities and/or governance may be needed to achieve lasting reliable water service.

Leverage advantages of new technology to improve treatment and operational flexibility.

Explore package systems with multiple treatment trains to cost-effectively treat existing and emerging contaminants. Use real-time monitoring and digital systems to better track performance and enable remote operation. Consider new operational models, such as the shared use of regional resources to keep plants on track and better stretch O&M dollars for continued results.

Engage partners for near-term results and continued compliance.

Work with technology providers to install new treatment systems, and engage private utilities who can help set up and run regional systems. Partner with universities, NGOs, and others who can assist on the ground. In addition, continue to engage with state partners and thought leaders to create comprehensive, lasting solutions.

Estimated Planning-Level Costs* for Construction, Operation, and Maintenance of New Treatment Systems in Severely Impacted Communities.

Contaminant	Treatment Improvements ($M)	Annual O&M Cost ($M)	Total Present Worth ($M)	Total Present Worth per capita ($)	Monthly O&M cost per household ($)
1,2,3-TCP	8.4	1.4	24	370	5
Arsenic	8.5	1.2	23	460	6

* Costs based on systems with persisitent violations of 1,2,3-TCP or arsenic, shown for demonstration purposes. Monthly average based on the total population affected; actual costs may vary by system.

3

PREVENT NEW, UNSUSTAINABLE SYSTEMS FROM FORMING

Prevent new failures with more rigorous approval requirements for independent, small systems.

Despite the recent "stop the bleeding" legislation limiting permitting of new unsustainable public water systems, many new development projects continue without appropriate TMF capacity. Consider strengthening implementation of TMF capacity requirements that support responsible development of new, sustainable water systems that can provide consistent, high-quality service to their communities.

Develop with the future in mind.

Encourage stronger coordination with land use planning authorities, Groundwater Sustainability Agencies, and the Division of Drinking Water on the formation of future water systems. New requirements, such as those under the Sustainable Groundwater Management Act (SGMA), will create additional constraints on accessing certain sources of water.

Next steps for a sustainable future

California has an opportunity to lead in forging new solutions to provide safe, reliable water for the future. As a non-advocacy group of water providers, CUWA is focused on technical aspects of the challenge. CUWA is working with the Water Research Foundation and Pacific Institute to develop a framework for sustainable public water systems that can be applied to create lasting change here in California and replicated throughout the country. Through convening technical exchanges to brainstorm solutions, partnering with technology providers to address treatment needs, and further digging in to the subset of severely impacted public water systems, CUWA is continuing to engage with the State and other entities to bring leadership and expertise to drive early progress.

Who is CUWA?

Established in 1990, California Urban Water Agencies (CUWA) is a nonprofit corporation of 11 major urban water agencies that collectively deliver drinking water to two-thirds of California's population. The water delivered by the 11 CUWA member agencies is a lifeline that supports California's urban populations and the bulk of the state's $2.7 trillion economy.

To learn more, visit www.cuwa.org