



Science, Technology, and the Future of America's Drinking Water

By Chris Wiant, M.P.H., Ph.D.

Americans consume more than one billion glasses of tap water each day.¹ As 2016 comes to a close and a new administration prepares to take over in January, there are over 150,000 public drinking water systems in the US.² Of these, 50,000 are community water systems that supply water to the same population (over 300 million Americans) year-round.³ Moreover, just 3 percent of community water systems provide drinking water for 79 percent of the US population. A cornerstone of US public health is ensuring access to safe drinking water through source protection, treatment, including [chlorine disinfection](#), and delivery to consumers; the Safe Drinking Water Act (SDWA) provides the [regulatory blueprint](#).



Emerging Challenges and Opportunities

Despite water supply and distribution being hailed as one of the [greatest engineering achievements of the 20th Century](#), America's drinking water faces an array of challenges, including:

- [Aging infrastructure](#);
- Limited funding and management capacity;
- [Lead contamination](#);
- [Premise plumbing](#) contamination and regulation;
- Source water degradation; and
- Climate- and extreme weather-associated threats and [emergencies](#).

To help confront these and other challenges, the US Environmental Protection Agency (EPA) recently released its [Drinking Water Action Plan](#), which serves "as a national call to action, urging all levels of government, utilities, community organizations, and other

EPA Drinking Water Action Plan Priority Areas

1. *Promote Equity and Build Capacity for Drinking Water Infrastructure Financing and Management*
2. *Advance Next Generation Oversight for SDWA*
3. *Strengthen Source Water Protection and Resilience of Drinking Water Supplies*
4. *Take Action to Address Unregulated Contaminants*
5. *Improve Transparency, Public Education, and Risk Communication on Drinking Water Safety*
6. *Reduce Lead Risks through the Lead and Copper Rule*

¹ EPA Outlines Actions to Improve Safety, Reliability of Nation's Drinking Water.

<https://www.epa.gov/newsreleases/epa-outlines-actions-improve-safety-reliability-nations-drinking-water>.

² President's Council of Advisors on Science and Technology (2016). REPORT TO THE PRESIDENT: Science and Technology to Ensure the Safety of the Nation's Drinking Water.

https://www.whitehouse.gov/sites/default/files/pcast_drinking_water_final_executive_summary_final.pdf.

³ The remaining 100,000 are non-community water systems that supply campgrounds, office buildings, schools, hospitals, etc.; almost 45 million people (15 percent) get all or part of their water from private wells.

stakeholders to work together to increase the safety and reliability of drinking water.” The Plan is organized around six overarching Priority Areas, each of which includes goals, challenges, and proposed actions.

Conducted simultaneously with EPA’s effort, the President’s Council of Advisors on Science and Technology ([PCAST](#)) launched and released the [executive summary](#) of its forthcoming report, “Science and Technology to Ensure the Safety of the Nation’s Drinking Water.” The PCAST working group’s near-term recommendations focus on improved monitoring and sharing drinking water quality information. Its long-term recommendations emphasize improved federal coordination of drinking water research and the development of next-generation technologies, demonstration projects, and comparative risk assessment methods and capacity.

Both reports are intended to complement and support one another. And both acknowledge that significant new and dedicated resources—as well as unprecedented partnerships and collaboration across all levels of government, utilities, the private sector, and the public—will be essential to their success.

Moving Forward

Although America’s drinking water is safe and of high quality most of the time and in most places, long-term, national drinking water challenges must be addressed. Our aging infrastructure, in particular, is in increasing need of repair and modernization. We hope that EPA’s Action Plan, PCAST’s forthcoming report, and an ongoing commitment to policies grounded in evidence-based science will help establish a forward-looking drinking water strategy for the country in 2017 and beyond.

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