

Coronavirus Creates New Challenges for Small and Rural Drinking Water Systems

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In a nutshell...

Many small U.S. community water systems were already struggling with economic, technical, and regulatory challenges before coronavirus (COVID-19) made them bigger. This article highlights how small and rural utilities are coping to stay operational during the pandemic.

The majority (97%) of the nation's 146,000+ active public water systems¹ are considered "small" under the Safe Drinking Water Act. They provide treated drinking water to less than 10,000 people. Most serve rural areas. A 2020 Government Accountability Office [\(GAO\) study](#) found that nearly 4.6 million Americans depend on "very small" systems (serving less than 500 people). We started writing an article on small drinking water system challenges in early 2020, before coronavirus changed everything. Since then, the Water Quality & Health Council has written about protecting water and wastewater (sewage) workers. We've also addressed the effectiveness of drinking water and wastewater chlorination to destroy SARS-CoV-2, the virus that causes COVID-19. It's time to return to this important topic.

Communities of all sizes have been hit hard in 2020 as businesses and manufacturers shut down. Many have been slow to reopen. But the financial shock of the pandemic on small and rural utilities has been staggering. Coronavirus has made big problems bigger and small revenues smaller.

Scale of the Problem

While most small systems consistently provide safe drinking water, many face substantial challenges. This can include lack of staff, technical expertise, lack of financial resources, and aging infrastructure such as old pipes and water towers. Water utilities typically pay for system upgrades through rates charged to their customers. Many also rely on taxes or other local sources of income. But small systems have fewer customers with whom to share rate increases, and existing water bills may already be difficult to afford for those communities. Recent spikes in unemployment have made rate increases unthinkable for most utilities. Nationally, rural drinking water systems were expected [to lose about \\$800 million in revenue](#) by mid-July. This includes utilities absorbing the costs and not shutting off water when customers pay late or don't pay at all.



¹ A [public water system](#) provides water to at least 25 people or 15 service connections. About one-third of public water systems are community water systems that supply potable water to the same population year-round at their primary residences. These range from municipal utilities to mobile home parks. The remainder are non-community water systems that supply campgrounds, office buildings, schools, hospitals, etc.

As a result, a large number of water projects in small and rural communities will be scaled-back, delayed, or simply not happen. That can lead to big problems. For example, failing to meet water quality standards or reducing their ability to respond to severe weather and natural disasters. To make matters worse, many small communities are also plagued with [aging sewage systems](#) and onsite septic systems that are not up to code.

Innovation and Resources to Protect Small and Rural Water Systems

When local problem solving is not enough, outside technical and financial help becomes critical. The U.S. Environmental Protection Agency (EPA) small systems research program provides tools, technologies, and approaches to help small systems lower costs and increase “capacity.” The latter addresses how utilities can acquire and maintain adequate technical, managerial, and financial capacity to consistently provide safe drinking water now and in the future. Expanded federal funding has been announced to improve water infrastructure financing (primarily loans) for water and sewage systems of all sizes. At the state level, North Carolina is developing its own [rating system](#) to identify public water and sewage system providers at risk of failure. The ratings will help target limited state funding and direct technical assistance to the most distressed communities.

Despite improved [options](#) for support, small utilities may find it advantageous to join a nearby utility or rural co-op. Another potential option is to purchase treated water from a local system. Yet another possibility for very small communities is to consider “alternative” drinking water technologies such as point-of-use devices. These are the focus of the 2020 GAO study. That report also highlights technical and financial assistance programs run by EPA and the U.S. Department of Agriculture (USDA) for small and rural systems; for example, USDA’s Circuit Rider Program. [EPA and USDA announced](#) their continued commitment to help rural water systems address aging infrastructure, increasing costs, and declining revenue challenges.

Snapshots: Small Communities with Big Drinking Water Challenges

A recent documentary of the drinking water problems of [Tooleville, California](#), highlights that community’s struggles to merge with a neighboring water system. Sometimes, small towns like [Clarence, Louisiana](#), cannot afford to pay for treated water to be piped in locally without assistance. These types of communities could be “a hiccup from shutting down” from unexpected repair bills or long-term budget deficits. In some places like [Bradshaw, West Virginia](#), there are no easy answers to resolve water issues. In such isolated communities, regionalization is simply not possible. The situation was described as “a perfect storm of aging infrastructure, cultural values, [and] ability -- or inability -- to pay.” These challenges typically grow as small communities become smaller. And these are just a few examples from *before* coronavirus.

Looking Forward and Making Progress

Under the best of circumstances, small and rural water utilities often face challenges in providing safe drinking water to their customers. The ongoing pandemic, still with no end in sight, has made things much harder for tens of thousands of struggling utilities. Next to the air we breathe, nothing is more important than safe drinking water. We salute the diligence of small and rural drinking water utility workers to protect public health in their communities 24/7. And we thank those working to support them, including organizations like Engineers without Borders-USA and the Community Engineering Corps. These groups work with underserved communities and volunteer engineers (like *S. Hubbs*) across the nation to keep our drinking water safe and affordable.

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