



Testimony of Manuel P. Teodoro, PhD
Community & Urban Affairs Committee
New Jersey Senate
10 September 2019

Chairman Singleton and members of the Committee, I'm honored to speak with you about the Water Quality Accountability Act (WQAA). My testimony is based on rigorous analysis of water utility management, finance and policy across tens of thousands of U.S. water systems, as well as 22 years of experience in the water sector as a professional and a researcher. My remarks are my own observations; I do not speak on behalf Texas A&M University as an institution.

First, I commend the New Jersey legislature for enacting this important law. The transparency that the WQAA promises and the incentives it creates can make New Jersey a national leader and model in water utility performance. My only gripe with the WQAA is its name: the word "accountability" implies a threat of punishment for failure. With due respect, I'd have preferred it be called the Water Quality *Achievement* Act. Public reporting on water system investment and performance should be a chance to celebrate excellence—a point to which I'll return.

Of course, the ultimate success of any law depends on implementation. Over the past decade I've been analyzing utility Safe Drinking Water Act (SDWA) compliance with Dr. David Switzer at the University of Missouri. Our research has uncovered many important patterns, and we've published several of them in peer-reviewed scientific journals. Perhaps the most striking, *persistent finding is the relationship between system size and SDWA compliance*: across the country, small water systems suffer disproportionately from poor compliance with SDWA's contaminant, treatment technique, management, and reporting rules.¹ Several other researchers have arrived at this same finding independently.² America's water problems aren't only in small systems, but there's no question that they're most prevalent in small water systems. This same pattern holds in New Jersey. In anticipation of this hearing, Dr. Switzer and I analyzed SDWA compliance in the Garden State from 2013-2018. After adjusting for source water, demographics, and socioeconomic conditions, we found a negative relationship between system size and SDWA health violations: *all else equal, a New Jersey utility that serves 50,000 people commits about half as many violations as one that serves 5,000.*

There are at least two reasons behind this consistent finding. The first and most obvious is organizational capacity. The smallest systems might have just 2-3 full-time personnel—perhaps even fewer—operating entire systems. This limited organizational capacity severely limits small systems' ability to comply with drinking water quality regulations. Members of Congress understood these capacity limits when they drafted the SDWA, but they believed small systems would consolidate in order to comply with the new law.³ More than four decades later, it's

¹ Switzer, D., M.P. Teodoro & S. Karasik, "The Human Capital Resource Challenge: Recognizing and overcoming small utility workforce obstacles," *Journal AWWA* 108(8): E416-E424 (2016).

² Allaire, M., H. Wu & U. Lall, "National trends in drinking water quality violations," *Proceedings of the National Academies of Science* 115(9): 2078-2083 (2018); Scott, T.A., T. Moldogaziev & R.A. Greer, "Drink what you can pay for: Financing infrastructure in a fragmented water system," *Urban Studies* 55(13): 2821-2837 (2017); Schaider, L.A., L. Swetschinski, C. Campbell & R.A. Rudel. "Environmental justice and drinking water quality," *Environmental Health* 18(3): (2019).

³ National Research Council. 1997. *Safe Water From Every Tap*. Washington, DC: National Academies Press.

clear that the widespread consolidation Congress anticipated didn't happen. Too many local officials have been unwilling or unable to build sufficient organizational capacity for SDWA compliance.

The second reason for the persistent relationship between utility size and compliance is enforcement (or lack thereof). The state agencies charged with SDWA enforcement have few effective levers with which to compel compliance. Criminal prosecutions under the SDWA are rare. Fining a municipal utility for SDWA violations punishes the very people that the law is supposed to protect. In most cases, a state regulatory agency cannot credibly threaten to put a water system out of business, and cannot provide the financial resources or human capital necessary to bring systems into compliance. Regulatory officials are also aware of small systems' limited capacity, and so there is also an understandable reluctance to crack down on failing small systems—especially for local government systems. Instead, regulatory officials try, with varying degrees of success, to cooperate with local managers to bring systems into compliance. My research indicates that regulatory agencies are, on average, more willing to impose sanctions on investor-owned utilities to force compliance.⁴ The result is that, in many cases, many water systems violate the SDWA frequently and chronically. This well-intentioned regulatory neglect disproportionately affects communities with low socioeconomic status or high minority populations.⁵

The great promise of the WQAA is that public reporting of system conditions, performance, and asset management can change the incentives for water utilities to build and maintain safe, sustainable, and resilient water systems. Critically, the WQAA requires a utility's highest-ranking official to certify compliance. Data from the law's first year give some reason for concern. Ahead of this hearing, I analyzed data on WQAA compliance in the law's first year. As of October 2018, just 44 percent of the utilities that are subject to regulation were in full compliance.

Compliance followed a familiar pattern. I fitted a statistical model that estimates the likelihood of full compliance with the WQAA in 2018 after adjusting for system size, ownership, source water, and community demographics. Figure 1 (attached) shows the relationship between system size and WQAA compliance. Notably, the relationship between size and WQAA compliance was different for regulated corporate, investor-owned utilities. As Figure 2 shows, smaller systems owned by larger corporate utilities were significantly more likely to comply with the WQAA than were municipal and independent private systems. The differences are largest for systems with populations from 10,000-80,000. Beyond that size, ownership's effect is statistically indistinguishable. This difference is probably due in large part to the investor-owned utilities' greater organizational capacity.

These initial findings raise some important issues for the WQAA's efficacy. First, organizational capacity once again appears to be an impediment to compliance. Second, 55 utilities submitted certifications that were not signed by the highest-ranking official; 18 systems did not submit any certification at all. It might be tempting to dismiss these problems as mere technical errors, but certification by the highest official is crucial to incentivizing sound management. For the WQAA to reach its full potential, top executives who lead utilities must be readily identifiable, so that those leaders can be lauded for achievement or held accountable for persistent problems. Systems that completely ignore WQAA requirements set a troubling precedent.

Looking ahead, New Jersey might seek to develop more ways to celebrate WQAA compliance and publicly recognize the leaders who prioritize safe, sustainable water systems. The state might also consider policies that encourage or compel consolidation or regionalization of systems that fail to comply.

⁴ Konisky, D.M. & M.P. Teodoro. 2016. "When Governments Regulate Governments," *American Journal of Political Science* 60(3): 559-74.

⁵ Switzer, D. & M.P. Teodoro. 2018. "Class, Race, Ethnicity, and Justice in SDWA Compliance," *Social Science Quarterly* 99(2): 524-35.

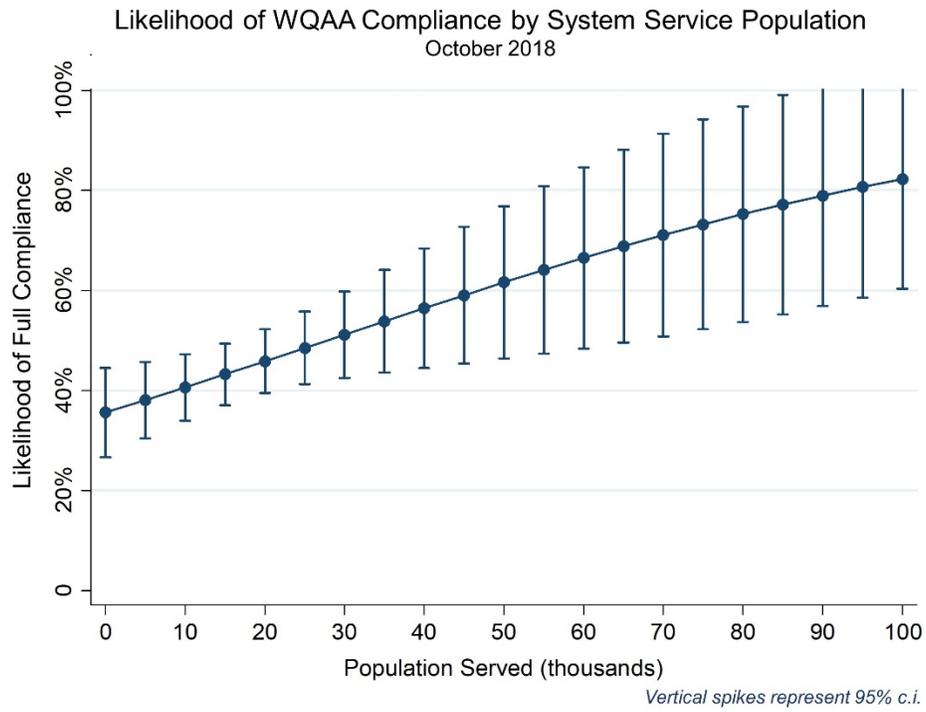


Figure 1

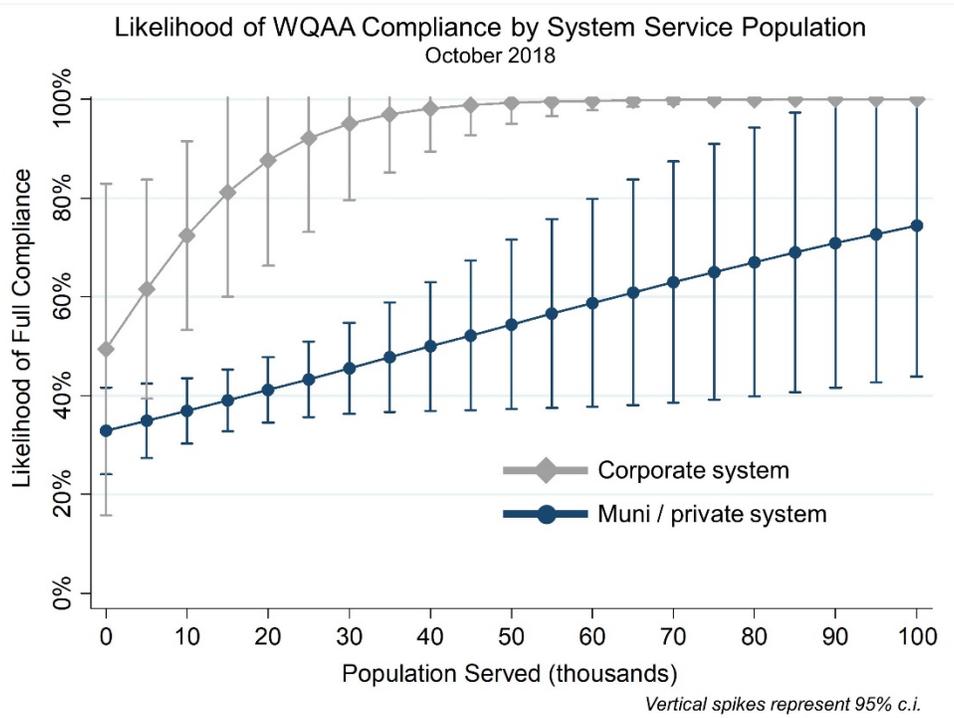


Figure 2