

Municipal Utilities and COVID-19: Challenges, Responses, and Collaboration

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Abstract

The COVID-19 pandemic has put pressure on essential public services. While much of the economy has been shut down, essential public services have continued. Using professional experience, publicly available information, and interviews with two municipal utility managers, we evaluate the challenges presented to municipal utility services by the COVID-19 pandemic and explore some of the responses by utilities to the pandemic. Specifically, we focus on the strategies utilities have used to keep employees safe from the virus and plans for workforce shortages. One important strategy we identify is reliance on mutual aid agreements, where utilities agree to send staff and equipment to other utilities in times of crisis. We also explore the role of a municipal utility association in coordinating response. The case of utility response to COVID-19 carries important potential implications for both public administration practice and research.

Keywords

COVID-19, utilities, collaboration

Introduction

The COVID-19 pandemic has put unprecedented pressure on the economy, the public health system, and the provision of public services. While many industries and services have been shut down to slow the spread of the pandemic, essential public services have continued. While most of the attention from the media and academic world has focused on the risk posed to the functioning of the healthcare system and healthcare workers (Chun-Hei Cheung et al. 2020; Hopkins Tanne et al., 2020), other essential public services need to be maintained as well. We examine how municipal utilities have responded to the crisis, with specific focus on how mutual aid programs and other strategies have been employed to maintain essential services.

Public services as varied as public works, mail delivery, police, and transportation have all remained in operation while the virus has spread. The risk to services posed by the virus can be seen starkly in the experience of the New York Police Department, where at the peak of the virus in the city, almost 7,000 officers, or nearly 20% of the uniformed workforce, was out of work due to sickness (Holcombe, 2020).

Public utilities, including municipal owned and operated utilities, the subject of this commentary, also needed to continue operating. Water, wastewater, and electric services need to be maintained throughout the spread of the pandemic, and the failure to do so could increase the risk of the pandemic. Sheltering in place requires that essential services continue, and the provision of utilities is a crucial part of this. Because

of this, utilities across the country have stopped shutoffs of water and electricity for nonpayment, with some states mandating these stoppages (National Association of Regulatory Utility Commissioners [NARUC], 2020). This is especially important in the case of water utilities, as proper sanitation is a crucial part of fighting spread of the virus. The virus, however, poses major challenges to utility services, both in terms of the health risk posed by virus itself and the anticipated financial impacts.

As a team of scholars and practitioners, we examine how municipal utilities have responded to the challenge of the COVID-19 pandemic using publicly available information, personal working experience, and interviews with two utility managers in the state of Missouri. We focus specifically on municipal owned and operated utilities here, although investor owned utilities, special districts, and nonprofit utilities (commonly known as cooperatives) may face similar challenges. Note that throughout the manuscript we will refer to the managers as “utility manager 1” and “utility manager 2.” We explore the challenge the coronavirus presents to utilities, the potential responses to maintain operations, specifically focusing on the operation of mutual aid programs, and the

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role of a Municipal Utility Association in coordinating response. This examination of utility response to COVID-19 has potential implications for both public administration practice and research.

The Challenge of COVID-19

The COVID-19 pandemic presents two primary difficulties to utilities in the United States. The first is the financial challenges posed by projected revenue losses. According to a report by the American Water Works Association (AWWA), changes in customer delinquency policies, declines in consumption, operational changes, and slow customer growth are projected to lead to a US\$13.9 billion impact from COVID-19 on the drinking water sector alone (AWWA, 2020b). An AWWA survey of water utilities found that more than 80% of surveyed utilities were already experiencing or were expecting to experience revenue generation/cash flow issues related to the pandemic (AWWA, 2020a). This concern was echoed by Utility Manager 1, who expressed that the biggest challenge posed by the COVID-19 pandemic was the uncertain financial impact. “The biggest issue, and it is an unknown, is the financial impact that we are going to be seeing from lost revenue.”

The second major challenge posed by the pandemic is to the continued operations of utilities due to workforce risk. As utility employees are necessary for continued provision of services, they are unable to shelter at home, potentially putting them at greater risk. If the virus were to spread among employees, this could necessitate the use of quarantine and threaten operations. This was a concern among the utilities surveyed by AWWA, as 50% expressed concern that the pandemic could impact the continuity of operations due to absenteeism (AWWA, 2020a). The worry about the potential impacts of the virus on utility operations was stated by Utility Manager 2, who expressed that if no testing could be done he was concerned about having to quarantine a crew. He stated that

Early on, the thing that was really spooking us was that there was no testing . . . so if we did have someone get sick on one of our crews, we’re a fairly small utility . . . so if one person would have showed up with symptoms we would have had to quarantine the whole crew.

Response to Workforce Challenges

While the financial challenges of COVID-19 are immense, the short-term concern for utilities, and the one with more immediate answers, is the challenge posed to workforce. Utilities have used a number of different approaches to keep employees safe and also had several plans in case of spread among essential employees.

A first important step in preventing the spread among essential employees is to keep nonessential employees home. The AWWA (2020a) survey found that 75% of utilities had

developed a work from home policy for non-field employees. Utility manager 1 expressed the importance of this step as well. “The first thing we did was determined which employees we could send home.” He reported that nearly a third of utility employees were now working from home.

Another crucial strategy is to split up employees into teams and shifts to prevent spread across large portions of the workforce. Both interviewees stressed this. Utility Manager 1 said that “All three of the facilities have shift employees . . . Isolate employees where we could and segment our existing staff.” He emphasized that even among the crews working together they were taking steps to keep them isolated as much as possible. Utility Manager 2 suggested that while the utility had not yet split their crews into different days, they were keeping them in separate groups and had also been keeping individuals separate as much as possible.

While keeping employees safe from the spread of the virus is important, it is also important for utilities to have continuity plans in case spread among employees impacts continued operations. A number of different workforce strategies can be identified. One strategy not mentioned in the interviews, but identified in the AWWA survey is the use of cross-trained employees. Sixty six percent of small utilities and 90% of large utilities surveyed suggested that they had identified staff in other areas who could be called upon to help operate plants (AWWA, 2020a). This requires that staff be trained in multiple areas of utility operations prior to an emergency. Switzer et al. (2016) previously identified cross-training as a potential strategy for small utilities to overcome workforce issues and it appears it is useful during times of crisis as well.

Another possible strategy in the case where the spread of the virus becomes a workforce concern is to completely isolate healthy essential staff at the utility facilities. Utility Manager 1 suggested that if things got bad enough, they would be able to isolate staff on site to continue operations. The utility had designated areas at the main facility that would allow for an employee to stay completely isolated while maintaining the utility operations.

Both utility managers expressed that one possible response to an incapacitated workforce was contracting with private companies that could provide short-term stop gaps in operations. Utility Manager 2 said that,

Plan B . . . we would be contracting work in the short term. On the water and wastewater side there are several larger companies and that’s all they do. And on the electric side down here there are three, four, or five different electric contractors that that’s all they do.

Utility Manager 1 also expressed that he had reached out to electric contractors in the area to make sure they would be available as a backup option. Contracting with private companies, however, was viewed by both interviewees as more of a last resort in case a more immediate solution, mutual aid, did not succeed.

Mutual Aid and the Missouri Public Utility Alliance

Mutual aid involves a voluntary agreement in which utilities agree to assist each other by providing workforce in times of crisis. While common in the utility sector, mutual aid is an emergency planning strategy across a number of sectors, including fire, police, emergency management services, and public health (Association of State and Territorial Health Officials, 2020; International Fire Chiefs Association, 2020; U.S. Department of Justice, 2005). Indeed, mutual aid is such a crucial part of emergency response that the Federal Emergency Management Agency (FEMA) provides guidelines for mutual aid agreements (FEMA, 2017). In the case of the coronavirus and municipal utilities, a mutual aid response would mean sending healthy employees from unaffected utilities to assist with the operation of essential services in impacted areas.

The utility managers we interviewed both emphasized the importance of their mutual aid agreements. Utility Manager 2 suggested that mutual aid would be the first step if his workforce was impacted. “We have mutual aid agreements with the Missouri Public Utility Alliance (MPUA), and we would probably look to them first for electric, water, and sewer if we had an issue to where we were almost incapacitated.” He also suggested that on the electric utility side, they had mutual aid agreements with groups in a neighboring state. Utility Manager 1 also suggested that mutual aid was a part of the plan, saying that the utility had been in contact with the MPUA regarding mutual aid if there were short-term staffing needs. These are not uncommon assessments, as the AWWA survey found that more than half of small and large utilities either had plans in place or were considering mutual aid agreements to maintain operations (AWWA, 2020a).

In the case of the two utilities interviewed here, the primary mutual aid agreement was organized through MPUA, an association of municipal utilities that provides several benefits for members, including the operation of a mutual aid program. MPUA’s mutual aid program is a free and voluntary program in which utilities sign up to receive and send aid in case of an emergency in which utility operations are threatened. The program applies to water, sewer, natural gas, and electric services. Enrollment in the program is done through the adoption of an ordinance by the municipal government or utility governing board, depending on the institutional arrangement of the utility (MPUA, 2014).

In the case of an emergency, an impacted city contacts MPUA and MPUA puts out a call to participating cities. Cities that have the capacity to send staff and equipment then respond to the call. MPUA (2014) acts as a coordinating body and is the point of contact for utilities who need assistance and those able to send it. MPUA also provides a series of guidelines to the utilities on best practices for effectively using and participating in mutual aid. While the mutual aid agreements include utilities in the region, MPUA also helps

mutual aid response to larger disasters in other parts of the country, such as hurricanes.

Both utility managers said that their utilities had previous positive experiences with the mutual aid program, both as recipients and providers of aid. Utility Manager 1 suggested that they had received mutual aid due to an ice storm in the mid 2000s, but had assisted in the mutual aid program nearly every year since becoming active in it, including sending employees to Florida in response to the 2018 hurricanes. Utility Manager 2’s utility had also received mutual aid in response to an ice storm and had frequently participated in sending crews to impacted utilities, including responding to a tornado in 2019.

There are numerous benefits to participating in a mutual aid program. The most obvious is that utilities want to protect themselves against the risk of a disaster. Utility Manager 1 expressed that it is inevitable that a utility will eventually have to call on others to help. “For us, it is a no-brainer that we will need that at some point.” In addition, in the case of a disaster, while it is possible to enroll in a mutual aid program post disaster, there are benefits to having already been enrolled in a program. FEMA will not reimburse cities for the first 8 hr of recovery costs unless a mutual aid plan is already in place. One interesting benefit stated by Utility Manager 1 was the opportunity for organizational learning and employee training. He stated that employees would come back from mutual aid having learned something that they could apply at their own utility. “It’s a great opportunity for your folks to understand how other’s work as well . . . We see internally a lot of improvements to our system every time we send someone out to work another program.” Finally, participating in mutual aid is a point of professional pride and a way of helping utilities in your network. Both managers expressed that there is a network and relationship among municipal utilities that necessitated helping when possible.

The Strengths and Challenges of MPUA in Coordinating Response

MPUA represents members’ interests in advocacy efforts and help them address technical issues, but its importance is also manifested in effectively coordinating responses in emergency situations. In this section, we discuss what makes MPUA effective in coordinating response and some challenges that it faces.

Information Sharing

Information is crucial for decision-making in responding to emergencies. A lesson learned from major catastrophes, such as the 9/11 terrorist attacks and Hurricane Katrina, is that information sharing is a key to the success of collaboration in emergency responses (Crowther, 2014). A key characteristic that distinguishes COVID-19 from natural disasters or even other pandemics is that we knew very little about how it is

transmitted and how to best protect employees, at least initially. The lack of credible information becomes a major barrier to planning and responding to the public health crisis. Both utility managers indicated that the unknowns and uncertainties regarding COVID-19 is one of the biggest challenges. It is difficult to plan correctly for what seemed to be a very uncertain situation. The mutual aid program provides several mechanisms for information sharing, learning from other organizations, and the diffusion of best practices.

First, MPUA actively push the information to its members. Utility Manager 1 told us that, facing an uncertain and fluid situation, MPUA was the first organization that they look to for credible information. To better compile and disseminate information, MPUA staff members created a “one-stop shop” web page on COVID-19 resources. Staff members searched through websites of FEMA, WHO, and CDC to compile information related to COVID-19 on one web page. The web page contains numerous valuable resources, including municipal activities and emergency planning resources, federal and state legislation related to COVID-19, information specific to electric utility, water and wastewater utility sectors, and quick updates of MPUA activities. It is a great resource for utilities to obtain the latest information regarding COVID-19. Both utility managers expressed that when it came to finding trustworthy information about the virus, MPUA was their first source.

Second, MPUA holds regional and quarterly meetings that become important conduits for information sharing and organizational learning. Quarterly meetings bring all members to MPUA headquarters in Columbia, MO, while regional meetings occur more frequently in different regions of the state. In response to COVID-19, MPUA changed regional roundtables to the virtual format. These roundtables become a crucial platform for utilities to share with one another their experiences and practices. COVID-19 brings its unique challenges—contingency plans that work for other emergencies, such as ice storms, may not work effectively for this public health crisis. Discussing with peers on important topics such as customer billing, office operations and policies, and reducing potential exposure of essential workers to the coronavirus is extremely valuable at this point. Some innovative practices to comply with social distancing and reducing exposure, such as staggered shifts and work hours, split-up crew, are shared on these regional roundtables.

Third, the professional network built through MPUA is a major benefit in emergency situations. MPUA has several platforms for utility managers to meet one another and build meaningful relationships. One mechanism is the quarterly meetings that bring all the members together to discuss issues such as latest legislative efforts, industry-related news, and common concerns. Through years of working together, these utilities build a very tight-knit community. Utility Manager 1 described it as “the brotherhood of municipal utilities.” Utility Manager 2 says that “the networking part is good . . . I have met other utility managers from other cities.

I have some friends that I can call to ask questions and check how they are doing things.” The professional networks provide a very convenient and efficient way for information sharing and the diffusion of effective practices.

Intergovernmental Relations

MPUA also plays a key role in coordinating with the federal and state governments. MPUA has rich experience in monitoring legislation introduced in the state legislature or the U.S. Congress and Senate as well as in working with FEMA and other federal agencies in responding to emergency situations. For example, in the case of COVID-19, many wastewater operators must sample outfall locations or other locations that may be difficult to get to while practicing social distancing. Therefore, MPUA reached out to Missouri Department of Natural Resources (DNR) and asked for clarification on what to do if permit compliance is not achievable at this time. DNR responded with a temporary enforcement policy. Moreover, if the mutual aid program is activated and aid is provided to certain utilities, MPUA will work with FEMA, State Emergency Management Agency, and other agencies to deal with cost reimbursement and other logistical issues.

Efficient Coordination

Last but not least, MPUA is the central node that makes the collaboration work. This network of public utilities has a hub-and-spoke structure with MPUA playing the role of the hub to coordinate all organizations. Coordinating mutual aid is complicated because different utilities may operate different types of equipment, which requires different levels of certification. A clearinghouse that maintains accurate data of utilities’ equipment and required certification is thus crucial for efficiently matching the needs with providers. MPUA keeps a running list of equipment, certification levels, and licenses of utility staff. They know who has what type of treatment plant for water and wastewater so they can call assistance from people with similar treatment facilities. The collaboration will not be able to work well without such a professional hub.

Challenges

The mutual aid program of MPUA has been extremely successful. Sometimes, however, enrollment could be affected by local politics. With the turnover of city council members, some new council members may not understand the value of the mutual aid program and decide to drop out. MPUA has to reeducate local political leaders the importance of being a part of the mutual aid program. Communicating the benefits of the mutual aid program is a key task for staff members.

The voluntary nature of the mutual aid program constrains utilities’ ability to provide assistance. COVID-19 poses a direct threat to the safety of frontline workers, and the lack of

medical treatment and vaccine exacerbate the problem. Some small utilities may be a little reluctant to provide aid in this situation because they are worried that if their workers contracted the virus from helping other utilities, the reliability of their services will be severely impacted. Utility Manager 2 told us that he would be concerned about sending employees if there is a request because

I am down to two experienced linemen at this point. If I send one of them and he got sick, I am really punishing myself. I am limited at how much I can assist others because we are thin on experienced workers.

From Utility Manager 1's perspective, while he thought they would be able to contribute, it would have to be voluntary. "We need to make sure our employees come home to their families . . . We would see who is available and who is able to volunteer." The voluntary nature of mutual aid gives utilities significant flexibility, but in some extreme situations, providing assistance may turn out to be challenging. Maintaining a large pool of utilities of varying sizes may provide some insurance against these extreme situations.

COVID-19 poses an unprecedented challenge because it hits every state within a short period time. Should the situation worsen, there might be a need for mutual aid across state lines or even at the national level to maintain key utility services running. However, mutual aid on the national level is challenging. Interstate mutual aid has often been hampered by licensing regulations and difficulties with reciprocity. The difficulty of interstate mutual aid depends largely on the service that is affected. While it is relatively easy for electric linemen to operate across state lines, it is far more difficult for water operators, due to differences in operating requirements. These challenges may apply to services outside of utilities as well, where licensing regimes may limit the ability to send willing workers across state lines. Mutual aid on a national level could be improved by streamlining operator certifications and licensing requirements for utility professionals between states. This could improve the efficiency of providing assistance and resources to other states during an emergency. Often times utility professionals must wait for approval for reciprocity if traveling to another state to work. Minimizing paperwork during an emergency is important, especially if internet connection or available electricity are an issue.

Implications for Practice

The experience of municipal utilities in the Missouri has important potential implications for the practice of public administration. First, it shows the importance of having multiple strategies in place when it comes to ensuring workforce continuity. Both utility managers we interviewed talked through multiple options and contingency plans, recognizing that an unprecedented crisis could cause unprecedented

organizational challenges. Also, while we cannot solely state based on two interviews that joining mutual aid agreements is the right thing for every organization, both utility managers we interviewed stressed how important it was for their utility. Indeed, when asked what he thought could be improved about the mutual aid program, Utility Manager 1 expressed that the biggest challenge was getting new utilities and especially smaller ones to understand how helpful it could be to an organization.

COVID-19 is a unique public health crisis in its scale and novelty. It is a global challenge that threatens every community. Hopefully we will not have to face another global pandemic, but local governments will certainly need to respond to emergencies, such as hurricanes, tornados, fires or terrorist attacks, that threaten the reliability of public services at a regional level. In this sense, COVID-19 provides a very valuable learning opportunity for all local governments to improve their emergency preparedness and hone their emergency management skills, especially in situations that features a high level of uncertainty. Many lessons can be learned; our exploration of utility issues showed the importance of associations for public organizations. MPUA acted as an information and coordination center for utilities to draw on, and it is simple to imagine other public organization associations providing similar benefits to member organizations.

Implications for Research

Considering the limitations of a study based on a public information and a limited number of interviews in a single service area such as this one, we should be careful about making claims larger than the research design can support. What we certainly can say, however, is that this our research points to important future areas for scholarly exploration. Public management scholars have long studied collaboration in areas such as economic development, emergency management, environmental protection, and mental health services (Kapucu & Hu, 2016; Lee et al., 2012; Provan & Milward, 1995; Scott & Thomas, 2017). These collaborations often involve organizations from public, nonprofit, and business sectors and have different degrees of formalization. There has been little research on mutual aid programs in public administration literature. The mutual aid program of MPUA has proven to be a very successful case of collaboration in responding to emergencies. It is unique in several aspects: first, it is administrated by MPUA, an industry trade organization, which is highly formalized and professional. This governance structure is similar to the "network administrative organization" (NAO) structure studied by collaboration scholars (Saz-Carranza et al., 2016); second, it is a voluntary arrangement in critical service areas, yet this voluntary arrangement has proven to be highly effective and resilient when responding to emergencies, such as major natural disasters or public health crises. The camaraderie built on the basis of a common purpose of

serving the public and through years of working together plays a key role in making this voluntary arrangement work. This case provides unique opportunities to study some important questions in collaboration: for example, how do personal relationships affect collaboration between organizations? To what extent can the structure of this collaboration and best practices applied in other contexts? As mentioned, mutual aid is a common form of collaboration across numerous service areas, including policing, fire, emergency management services, and public health. The breadth of service areas that use mutual aid agreements provides ample variety for scholars to pursue explore when and how these types of arrangements are most effective.

In addition, a central focus in public administration has long been on how services differ across sectors and institutions (Rainey et al., 1976). Public utilities in the United States vary greatly in terms of institutional structure and ownership. On the electric utility side, there is a mix of municipal owned utilities, private utilities, and nonprofit cooperatives. Water utilities vary greatly as well, with municipal owned, for profit privates, some cooperatives, but also a large number of special districts, a government institution that has been getting more attention in the public administration literature (Goodman & Leland, 2019; Greer & Scott, 2020). It would be useful to explore how these sectors deal with mutual aid and other emergency response questions differently. Indeed, Utility Manager 1 mentioned that these differences were meaningful, saying mentioning that while their mutual aid agreement was with other municipal utilities, the private and nonprofit utilities had their own forms of collaborations and mutual aid agreements. Exploring these differences systematically would help elucidate differences in collaboration and emergency response across sectors.

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