EPA's Local Government Advisory Committee
Workgroup on America's Waters and Infrastructure
October 13, 2022

Summary of Issue
Water and wastewater treatment plant operators are vital to protecting public health. They provide clean and safe water to the public. However, the industry is predicting large scale retirements. This creates challenges for recruitment and succession planning, which have been further exacerbated by the COVID-19 pandemic. The Bipartisan Infrastructure Law (BIL) provided unprecedented funding to invest in the nation's water workforce, but this opportunity also includes the challenge of further expanding the workforce to manage these new investments.

EPA provided the following charge to the LGAC:

> *As EPA works to support the water workforce, how can we ensure that we are making effective and efficient investments. The EPA asks the LGAC to advise on the following ways to support:*
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> - *Training and apprenticeship opportunities*
> - *New and innovative ways to recruit and retain employees*
> - *Targeted resources for utilities and municipalities*
> - *Ways to streamline certification requirements*
> - *New or adapted partnerships with states, municipalities, tribes, territories, industry, nonprofit organizations and/or academia*

While the LGAC applauds the efforts that the EPA has already taken to address water workforce issues, it has identified several recommendations to deepen the impact of this work, which are detailed below:

- Work with EPA's Office of Public Engagement and Environmental Education and other industry-related associations to develop curriculum and toolkits that state, local, tribal, and territorial governments can use to engage youth and teens.

- Include a focus on education and marketing for new grant funding opportunities, including funding for water system employees to speak in schools about career opportunities.

- Work with industry-related associations to develop a peer-to-peer network that connects communities doing innovative things in workforce development with communities needing support.

- Increase support for programs that provide job-related training to students and returning citizens through apprenticeships, bootcamps, and partnerships between water utilities and higher education institutions.

- Increase support for re-training workers who have been laid off in industries that have transferrable skills to water and wastewater jobs.

- Explore ways to add STEM and water workforce to programs like AmeriCorps and VISTA, so that utilities can hire program participants.

- Fund a study that forecasts the future needs of the water workforce, including automated tasks and using wastewater surveillance for public health management.
- The LGAC re-emphasizes its July 2022 recommendation that EPA Regional Offices develop meaningful partnerships with municipal leagues and similar organizations in every state that effectively build awareness of EPA's resources within local governments.

Recruitment and Outreach

Recruiting new people to join the water workforce is one of the major hurdles that the industry faces. The way to attract new employees – especially those of younger generations – is not to highlight a job's responsibilities and salary, but to educate prospective employees about the value of the water workforce in maintaining public health today and developing innovative solutions to tackle the challenges of the future. A career in the water workforce isn't just about testing for contamination or overseeing a computer's operation. It's about developing the technology and legal framework to reuse effluent wastewater in areas of the country where water is growing more and more scarce. It's about developing cost-effective ways to remove PFAS and other contaminants from drinking water so that a community can confidently use the water at its disposal. That message needs to be shared with the public starting at an early age.

Creating Curriculum

The LGAC knows that EPA understands this, as evidenced by the grant funding provided to support this work, and the videos on its website that highlight these themes. However, nothing compares to the impact of engaging someone in a meaningful and immersive experience. EPA can go a step further by working with EPA's Office of Public Engagement and Environmental Education and other industry-related associations to develop curriculum and toolkits that state, local, tribal, and territorial governments can use.

This would enable communities that either don't have the capacity to apply for a grant or the capacity to develop an outreach campaign, to lay the foundation for recruiting young people. For example, a selection of activities and scripts to use when hosting field trips would help a utility that is interested in hosting students but doesn't have a staff member confident in their ability to engage students. Once the EPA's National Environmental Education Advisory Council is in place, this group could also provide input on the content of such work.

There are models for EPA to consider for this type of work. For example, NEW Water, which covers the greater Green Bay area of Wisconsin, hosts an annual STEM Superheroes Camp. Kids are recruited to defeat the villains 'Sinister Sediment' and 'Phosphorus Phury,' and many return year after year to learn about the water cycle and how utilities provide the public goods of drinking water and sewerage. Existing employees note this program as a morale booster, too. NEW Water also hosts an annual Einstein Science Expo, which draws more than 5,000 attendees to enjoy interactive exhibits like fishing in mini swimming pools with magnetic fish and poles, while staff talk about the water system.

The LGAC also recommends finding a way to fund employees of local water systems to come directly to schools. The funding would not need to be significant but offsetting the hours they are away from their office to do outreach would help overcome a barrier for small systems that have limited budgets.

Distributing Resources
Once these resources are available, EPA needs to reconsider how it is distributing them. The LGAC was surprised by the volume of resources already on EPA's website, but content is only worthwhile if it is being seen. EPA should work networks of water industry employees, universities, and public schools to distribute outreach resources far and wide. In terms of reaching elected and appointed government officials, the LGAC re-emphasizes its July 2022 recommendation that EPA Regional Offices develop meaningful partnerships with municipal leagues and similar organizations in every state that effectively build awareness of EPA's resources within local governments.

The LGAC also recommends that EPA work with industry-related associations to develop a peer-to-peer network that connects communities doing innovative thinks in workforce development with communities needing support.

Training a Workforce
As EPA understands, once an individual is interested in the water industry, another barrier is providing the training to get an employee onboarded, and the incentives to retain them in a position long term, especially in the current labor market. Several communities have attempted to address this by starting the training process early and paying individuals to learn.

Partnerships with Schools, Prisons and More
NEW Water has worked with a Youth Apprenticeship Program through the State of Wisconsin and the Greater Green Bay Chamber. High school students work part-time at NEW Water, learning operations, while they take a course at Northeast Wisconsin Technical College.[1] In Detroit, the Water and Sewerage Department developed a "bootcamp" program modeled off the private sector, where individuals get paid full time but attend training two days per week. Similarly, the National Rural Water Association (NRWA) has a Registered Apprentice program for member states that provides a 2-year training program for individual to earn-while-they-learn. With close to 300 apprentices in operation, they are looking to expand to more communities. The LGAC encourages EPA to support these programs with additional funding and resources whenever possible.

Additionally, the LGAC recommends that EPA facilitate relationships between utilities and higher education institutions. One of the lessons learned from COVID is that a wastewater facility is not just a place to process waste, but also a center of information about public health needs. EPA Regional Offices could convene colleges and universities within their states and encourage collaborations whereby wastewater facilities could be used as an extension of a school's lab. This would result in unparalleled training opportunities, as well as an increase in public health information about a community. Again, there are already examples of this type of work in the field, notably at the Illinois Community College System, which has set up a water plant for training employees, and offers detailed courses for students.

Where there are unemployed individuals, there is the potential for partnerships to train future water workforce members. One place to explore is the federal prison system. The LGAC recommends that EPA support water utilities in working with incarcerated individuals to provide training and pathways to employment upon release. Another area to tap is when industries have laid off workers who have skills

[1] New Water – Green Bay WI. The Brand of the Green Bay Metropolitan Sewerage District. http://cswea.org/wp-content/uploads/2019/02/CS_Fall2018_Plant-Profile.pdf

transferrable to water and wastewater jobs. For example, when a Coca-Cola plant in Massachusetts announced they were closing in one year, local utilities were able to work with the plant to identify and train future employees.

Finally, programs like AmeriCorps and VISTA provide needed workforce to rural and mid-sized communities across the country. The LGAC recommends that EPA explore ways to add STEM and water workforce to these programs, so that utilities can hire program participants.

System-to-System Partnerships
Several systems have also completed innovative and effective work to train and retain employees. This includes the Birmingham Water Works internal training program, which has not only helped train and develop leaders in its own system, but also numerous systems across Alabama, and the state of Arizona, which has recruited so many new operators in recent years that they now have a surplus. In Kentucky, small systems have partnered together to share human resource staff as well as specialized operators, which has provided improved service and lowered overall operating costs. The LGAC recommends that EPA support more programs like these and encourage peer-to-peer learning wherever possible.

Planning for the Workforce of the Future
Like many industries, the workforce needed to support the water industry is changing. The LGAC recommends that EPA fund a study to forecast this change, so that utilities and the industry at large can focus its recruitment efforts on the positions that will remain for the next generation. Two specific changes are highlighted below.

Digital Water Workforce
Many of the tasks required by water system operators are or will eventually be automated. For example, DC Water has implemented a Digital Twin solution to work alongside people in an effort to improve operational and financial resilience. Given the trajectory of workforce automation, its important to know what water and sewer operator functions and responsibilities will become computer-based in the next ten to twenty years.

Wastewater Surveillance
The COVID-19 pandemic brought together local government public utilities, health departments, and higher education institutions, who developed rapid monitoring of SARS-CoV-2 in city wastewater. Public facing dashboards showing the magnitude and trend of SARS-CoV-2 in wastewater became important tools to help individuals track the virus in their community. Those efforts have been institutionalized by the U.S. Centers for Disease Control and Prevention's National Wastewater Surveillance System, which seeks to forecast and monitor outbreaks of disease. Alongside the public's increased understanding of wastewater via the dashboards, specialized trainings occurred at a variety of levels, including training of K-12 school nurses to optimize the use of school-level wastewater monitoring and incorporating wastewater in high school student curriculum.

This kind of work is the future of the wastewater industry, and it will require new skills and cross-disciplinary training. As wastewater samples move through collection, analysis, interpretation, and action, the expertise of public health laboratories, statisticians, and epidemiologists all play a role. The national system plans to expand to multiple disease targets; influenza, polio, and RSV have already been initiated in some locations. All of this provides an exciting opportunity to engage and educate the public,

students, and researchers in the importance and value of wastewater. The LGAC recommends that EPA's Office of Research and Development identify the gaps in workforce skills and research needed to maintain and grow the surveillance system.

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