**The Water Workforce: Improving Regional Infrastructure and Promoting Economic Opportunity**

**April 2018**

**Background and Methodology**

* Seizing the water workforce opportunity
  + At a time when many Americans are struggling economically and many of the country’s water infrastructure assets are at the end of their useful life…
  + ……there is an infrastructure ***and*** economic opportunity for all workers across all skill levels across all regions
* Who are water workers?
  + The water workforce captures the wide range of workers who are directly involved in the construction, operation, design, and governance of the country’s various water infrastructure systems.
  + Across the public and private sector, these workers help maintain and oversee a number of drinking water, wastewater, stormwater, and green infrastructure facilities, in addition to other closely related physical assets.
* Who is responsible for hiring, training, and retaining water workers?
  + In addition to water utilities, an enormous variety of other water-related employers, community partners, and national and state actors each play a role.
* Recognizing barriers to hiring, training, and retaining water workers
  + An aging sector that lacks diversity and struggles to attract workers
  + Difficulties defining needed skills and creating portable, versatile credentials
  + Challenges onboarding prospective workers and developing talent
* Methods
  + Defining the Water Workforce
    - Consider previous analyses and other literature
    - Define the most relevant “water” industries
    - Define the most relevant “water” occupations
  + Measuring the Water Workforce
    - Rely on several different data sources, mostly covering 2016
    - Primary indicators include: employment, wages, educational attainment, training, skills, and demographics (age, gender, and race)
    - Geographies analyzed: national, metropolitan, sub-metropolitan

**Findings**

* **Finding 1:** In 2016, nearly 1.7 million workers in 212 different occupations were directly involved in designing, constructing, operating, and governing U.S. water infrastructure, spanning a variety of industries and regions.
  + Water utilities represent one of the single biggest employers in the water sector, but multiple other industries and establishments are crucial to consider as well; utilities employed 298,000 workers, representing about 17.7 percent of all water workers.
  + The largest occupations include positions in the skilled trades and several administrative, financial, and management positions.
  + Water workers are found in every market across the country, typically accounting for about 1 to 2 percent of employment and amounting to 1.1 million workers in the country’s 100 largest metro areas.
* **Finding 2:** Water-related occupations not only tend to pay more on average compared to all occupations nationally, but they also tend to offer more equitable wages. In particular, they pay up to 50 percent more to workers at lower ends of the income scale.
  + Water workers at lower ends of the income spectrum (especially at the 10th and 25th percentile) earn more competitive wages compared to all workers nationally. Specifically, water workers earn hourly wages of $14.01 and $17.67 at the 10th and 25th percentiles, respectively, compared to the hourly wages of $9.27 and $11.60 earned by all workers at these percentiles across the country.
  + Moreover, workers in nine of the ten largest water-related occupations – and 23 of the 25 largest water-related occupations – earn more at these percentiles. These range from water treatment operators to electricians to industrial machinery mechanics.
  + In some metro areas, water occupations can pay almost $9 more per hour to workers at the 10th and 25th percentile compared to all occupations.
* **Finding 3:** Most water workers need less formal education to qualify for their jobs, including 53 percent having a high school diploma or less. Instead, they require more extensive on-the-job training and familiarity with a variety of tools and technologies.
  + While 32.5 percent of workers across all occupations nationally have a high school diploma or less, a majority of water workers fall into this category, speaking to the lower formal educational barriers to entry into these types of positions.
  + Water workers often need more work experience and on-the-job training, with many needing at least 2 to 4 years.
  + Personal computers, power drills, and two-way radios are among the most common tools used by water workers, in addition to several other technologies.
  + Water workers often possess high levels of knowledge in 11 different content areas, shared by workers employed in other infrastructure sectors.
* **Finding 4:** Water workers tend to be older and lack diversity; in 2016, nearly 85 percent of them were male and two-thirds were white.
  + While water workers are slightly older than the national median, there are lower shares of younger workers, in particular.
  + From 2016 to 2026, about 10.6 percent of water workers – on average each year – are projected to either permanently leave (i.e. retire) and transfer out of their current jobs
  + The water industry is also predominantly male, with most female workers concentrated in administrative and service occupations instead.
  + Black and Asian workers tend to be under-represented across the water sector, while Hispanic workers tend to be over-represented, particularly in construction.
  + However, many water utilities tend to have operations in neighborhoods with lower levels of educational attainment and higher levels of poverty, speaking to their importance as economic anchors to many disadvantaged workers and residents.

**Implications and Recommendations**

* Implications: The water sector offers opportunity, but there are still clear gaps to address
  + Opportunities offered:
    - Broad range of industries and occupations
    - Jobs found in every market
    - Higher and more equitable wages
    - Lower educational barriers to entry
    - Emphasis on valued, transferable skillsets
    - Potential for long-term careers and lifelong learning
    - Utilities = economic anchors in some of the country’s most disadvantaged neighborhoods
  + Gaps to address:
    - Aging workforce, with notably lower shares of younger workers
    - Lack of gender and racial diversity
    - Need for more extensive experience and on-the-job training
    - Difficulties creating portable, versatile credentials
    - Limited public awareness, visibility, and prioritization
    - Challenges hiring and training workers quickly and affordably
    - Struggles retaining skilled workers
* Recommendations: Given the long-list of “to-do’s” to realize this opportunity, there needs to be a new water workforce playbook to accelerate thinking and action.
  + 1: Utilities and other water employers need to empower staff, adjust existing procedures, and pilot new efforts in support of the water workforce
    - ✔ Hire and train dedicated human resources staff to meet with younger students, connect with more diverse prospective workers, and explore alternative recruitment strategies
    - ✔ Create a new branding strategy to more effectively market the utility or organization to younger students and a broader pool of prospective workers
    - ✔ Account for workforce needs as part of the budget and capital planning process, while creating more detailed and consistent labor metrics
    - ✔ Update or create new job categories to provide greater flexibility for potential applicants
    - ✔ Develop competency models – or customize existing models – to promote continued learning and skills development among staff
    - ✔ Design and launch new bridge programs, including “water bootcamps,” to provide ways for younger workers and other non-traditional workers to explore water careers and gain needed experience
    - ✔ Implement a formalized mentorship program to provide a point of contact for interns and to better monitor their career progression
  + 2: A broad range of employers and community partners need to hold consistent dialogues, pool resources, and develop platforms focused on water workers
    - ✔ Identify a common regional “point person” – or organization – to schedule and steward consistent meetings among a broad range of community partners
    - ✔ Hold an annual water summit/meet-and-greet where prospective workers, employers, and community partners can connect with one another regionally
    - ✔ Out of these dialogues, develop a comprehensive water workforce plan, highlighting regional training needs and avenues for additional collaboration
    - ✔ Develop a more predictable, durable channel of funding to support these efforts, driven by public fees and private-sector support
    - ✔ Strengthen local hiring preferences in support of more minority and women business enterprises
    - ✔ Create a new web platform to connect water workers and employers, serving as a simple, consolidated site for regional job postings
    - ✔ Launch a new regional “academy” – designed and run by employers and community partners – in support of more portable infrastructure education, training, and credentials
  + 3: National and state leaders need to provide clearer technical guidance, more robust programmatic support, and targeted investments in water workforce development
    - ✔ Federally, hire or assign specific program staff to serve as common points of contact across relevant agencies, with a focus on water workforce development
    - ✔ Supported by federal agencies or other national organizations, conduct a series of dialogues and learning sessions in a broad range of markets to assess water workforce needs and priorities
    - ✔ Develop a common landing page – or repository – that highlights regional best practices and other innovative water workforce development strategies
    - ✔ At a national or state level, form a “water workforce council” among leading groups in this space to serve as an advisory body, with an eye toward future priorities
    - ✔ With guidance from employers, industry associations, and other stakeholders, establish more versatile and streamlined water certifications nationally
    - ✔ Expand federal and state funding via existing workforce development programs and educational initiatives, including apprenticeships
    - ✔ Expand federal and state funding via newly targeted and competitive grant programs, in support of alternative bridge programs and other innovative efforts