Congressional Black Caucus® FOUNDATION

WATER CAREERS AND OPPORTUNITIES FOR AFRICAN AMERICANS

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WATER CAREERS AND OPPORTUNITIES FOR AFRICAN AMERICANS

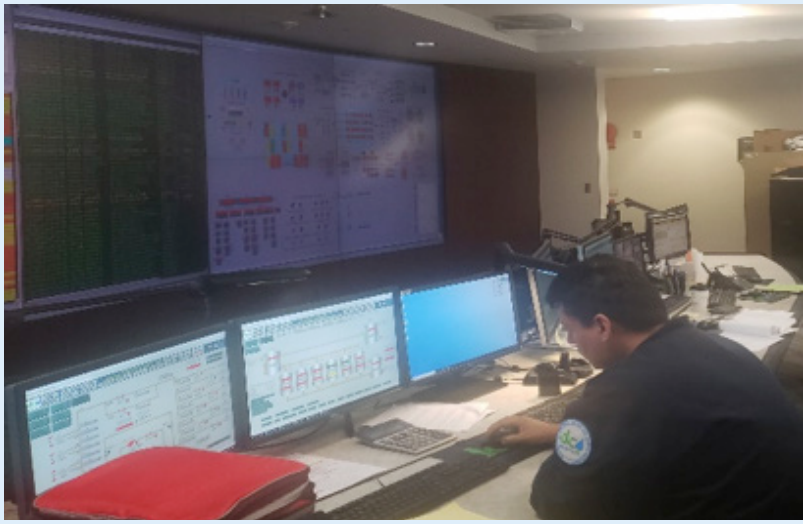
Water Treament Facility

OVERVIEW

Continuous access to clean, safe and affordable water is critical to our economy, health, and way of life. This briefing note focuses on career opportunities for African Americans with public water and wastewater utilities responsible for providing such services. Water utilities manage our nation's water resources to provide drinking water and collect and treat wastewater and stormwater. Across the United States (U.S.), there are nearly **155,000 public water systems.** Over 286 million people in the U.S. get their tap water from a public community water system and eight percent of US community water systems provide water to 82% of the US population through large municipal water systems (EPA, 2014).

The workforce in the United States is aging with many "baby boomers" born from 1945-1965 soon to retire. This demographic shift has implications for creating a new, diverse and inclusive pipeline of talent in the water sector, including for water utilities, which employ 17.7 percent of the near 1.7 million people in the total water workforce (Brookings, 2018). However, some water and wastewater utilities estimate that over 50% of workers are eligible for retirement like Atlanta (48%), Chicago (55%) and New Orleans (50%). AECOM (Quinn et. al., 2014) found that $233 billion will be invested by 30 of the largest water and wastewater agencies over the next decade. These investments will generate $524 billion in economic output over the next ten years and support 289,000 jobs annually.

These water occupations pay good middle-income wages. Their average wage exceeds the national average, and their wage advantage is especially apparent at lower ends of the income scale. 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. These higher wages are also nearly universal across the water sector, with 180 of the 212 water occupations (or more than 1.5 million workers) earning higher wages at both of these percentiles. This means most water occupations earn a more livable wage than other jobs in most places across the U.S. (Brookings, 2018)



JOB GROWTH AND RETIREMENTS
Drivers of Change for the Water and Wastewater Utilities Sectors

By 2032, the American Society of Civil Engineers (ASCE, 2017) Report Card on waste water treatment plants predicts over 56 million more people will connect to centralized treatment plants due to an estimated 23% increase in service demand. Yet ASCE's 2017 report card scores for water and wastewater infrastructure were a "D" and D+ respectively. In 2016 the U.S. EPA estimated that utilities will need to spend $655 billion over the next 20 years to maintain, upgrade, or replace water and wastewater infrastructure.[1] So, while the need exists to address poor infrastructure, an aging water and wastewater workforce is an even stronger driver of opportunities.

The GOOD news is that the return on investment for water infrastructure repairs is high. The Water and Environment Federation's Value of Water Campaign found that for every $1 spent on infrastructure, $6 is generated in returns. As for jobs, every new water sector job, paying good middle-income wages, adds an estimated 3.68 jobs to the US economy!

Source: https://www.wef.org/resources/for-the-public/value-of-water/

The water sector employs workers in a wide array of technical and non-technical jobs. Some top water related occupations with growth through 2026 **that outpace all other occupational categories** include:

WATER SECTOR JOB GROWTH BY OCCUPATION THRU 2026

- Software developers, applications
- Information security analysts
- Market research analysts and marketing specialists
- Pipelayers
- Plumbers, pipefitters, steamfitters
- Heating, air conditioning, and refrigeration mechanics and installers
- Paralegals and legal assistants
- Pile-driver operators
- Pump operations, except wellhead pumpers
- Environmental engineering technicians

Source: (Brookings, 2018}

In Table 2 the top five water and water utility occupations as a share of total employment in the water sector are shown as well as top apprenticeships with their median hourly wage and competitive salaries.

[1] https://blog.epa.gov/2016/07/12/the-time-to-invest-in-americas-water-infrastructure-is-now /

TOP 5 WATER OCCUPATIONS & WATER UTILITY OCCUPATIONS

WATER OCCUPATIONS

PLUMBERS, PIPEFITTERS, & STEAMFITTERS

EMPLOYMENT	SHARE OF EMPLOYMENT
324,500	19.3%

CONSTRUCTION LABORERS

EMPLOYMENT	SHARE OF EMPLOYMENT
149,513	8.9%

WATER AND WASTEWATER TREATMENT PLANT AND SYSTEM OPERATORS

EMPLOYMENT	SHARE OF EMPLOYMENT
115,840	6.9%

OPERATING ENGINEERS & OTHER CONSTRUCTION EQUIPMENT OPERATORS

EMPLOYMENT	SHARE OF EMPLOYMENT
79,900	4.8%

HEATING, AIR CONDITIONING, AND REFRIGERATION MECHANICS AND INSTALLERS

EMPLOYMENT	SHARE OF EMPLOYMENT
70,811	4.2%

WATER UTILITY OCCUPATIONS

WATER AND WASTEWATER TREATMENT PLANT AND SYSTEM OPERATORS

UTILITY EMPLOYMENT	SHARE OF EMPLOYMENT
102,520	34.4%

METER READERS, UTILITIES

UTILITY EMPLOYMENT	SHARE OF EMPLOYMENT
17,500	5.9%

ELECTRICIANS

UTILITY EMPLOYMENT	SHARE OF EMPLOYMENT
14,900	5.0%

PLUMBERS. PIPEFITTERS. & STEAMFITTERS

UTILITY EMPLOYMENT	SHARE OF EMPLOYMENT
12,850	4.3%

PIPE LAYERS

UTILITY EMPLOYMENT	SHARE OF EMPLOYMENT
9,880	3.3%

Source: Brookings analysis of Bureau of Labor Statistics and CPS data, 2018

POPULAR APPRENTICESHIP OCCUPATIONS RELEVANT TO WATER JOBS & MEDIAN HOURLY WAGE OF ALL WORKERS IN THE OCCUPATION, *FY 2012*

OCCUPATION	ACTIVE APPRENTICES	MEDIAN HOURLY WAGE
ELECTRICIAN	36,742	$23.96
CARPENTER	15,479	$19.20
PLUMBER	13,201	$23.62[1]
PIPE FITTER	8,586	$23.62[1]

Source: U.S. Department of Labor Office of Apprenticeship Factsheet 2013

Even with higher pay, water occupations often do not demand much formal education but they do require some experience and training, especially for middle-skill and paying jobs. While 32.5 percent of workers across all US occupations have a high school diploma or less, a greater percentage, 53 percent, of water workers have a high school diploma or less such as carpenters, welders, and septic tank servicers (Brookings, 2018). At the same time, water and wastewater utility workers do require aptitude in science, technology, engineering and math (STEM).

As water technologies become more complex and automated, the high level of expertise required for operation and maintenance of utilities and STEM competence will persist. Jobs cited above such as electricians, along with water treatment engineers, and environmental engineers, require STEM related education and training. Many large utilities report ongoing hiring challenges with skilled technical workers such as machinists, electricians, and pipefitters (GAO, 2018). However, STEM skills, strong mentors and apprenticeships are vital and necessary to fill the majority of water and wastewater utility jobs now and those with expected growth. For example, 78.2 percent of water workers need at least one year of related work experience, and water treatment operators, plumbers, and HVAC technicians are among the many large occupations that require two to four years of related work experience. Apprenticeships can help provide African Americans with a paycheck, hands-on training, technical instruction—which is often free—and a solid credential to start a water utility career. Improving access and completion of STEM education is a job prerequisite to get into apprenticeships and pass certifications for licensure after training. Why? 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. With over 180 of the 212 water occupations (or more than 1.5 million workers) earning higher wages at both of these percentiles, most water occupations provide a more livable wage in most places (Brookings, 2018), including in cities with large numbers of African Americans. Now is the time to raise awareness of these opportunities to be part of a sector that pays well and advances public health and environmental stewardship.

In sum, barriers to jobs in the water and wastewater utilities discussed above include: (1) awareness of the sector; (2) education and skills; (3) training and licensure; and (4) networks and mentors. Policymakers, employers and workforce development practitioners should implement intentional strategies to ensure the above barriers are addressed for nontraditional and excluded groups, especially African Americans. More STEM and/or Science Technology Engineering Arts and Math (STEAM) programs are needed for people of color in middle and high schools, and in community, community colleges or university run programs, among other avenues.[1] The top engineering and environmental science programs at Historically Black Colleges and Universities (HBCUS) are also a great option to support, co-create and tap into a pipeline of African American talent by utilities who can help establish internships, professional development opportunities, and university partnerships to invest in creating a diverse, sustainable workforce.

[1] See the Congressional Black Caucus Foundation briefing note on Apprenticeships and HBCUs for more information.

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WHY DIVERSITY MATTERS IN CREATING INCLUSIVE WATER AND WASTEWATER SECTORS

The above facts outline the value of and expected needs for water sector workers based on an aging workforce. Water and wastewater workers are significantly older than the national median (42.2 years old) in some occupations, including water treatment operators (46.4 years old). Despite projected job growth, the sector currently lacks ethnic and gender diversity. Nearly two-thirds of the water workforce is white, similar to the ratio found across all occupations nationally (65.3 percent). Black and Asian workers make up only 11.5 percent of the water workforce as shown in *Figure 1*, compared to 18 percent of those employed in all occupations nationally. While the Hispanic share of the water workforce (21.8 percent) exceeds the national average across all occupations (16.7 percent), they are primarily concentrated in construction jobs. **People of color are also underrepresented in higher-level, higher-paying occupations in engineering or management.** Although women make up 46.8 percent of workers across all occupations nationally, they account for only 14.9 percent of the water workforce (Brookings, 2018).

The National Utilities Diversity Council is also advocating for utilities, including water and wastewater utilities to diversify its workforce due to projected ethnic changes and the rising numbers of millennials.

They also cite the fact that organizations with a diverse workforce outperform those lacking diversity by 35%.

Water workers are across the country, employed everywhere across all geographic regions; they consistently represent 1 to 2 percent of total employment in the country's metro and rural areas. Nearly 37% of water workers - about 109,000 people, are found in 25 of the top 100 major cities. In addition to the occupations previously mentioned, today's wastewater utility has broad technical, financial, legal, and management mandates to meet based on regulatory and other requirements. And, while this briefing note has highlighted wastewater operators, engineers and various technical jobs that are more commonly found, the water and wastewater utility of the future, and its leadership, has expanded to include lawyers, economists, scientists, and management experts whose ranks should also be diverse and inclusive.

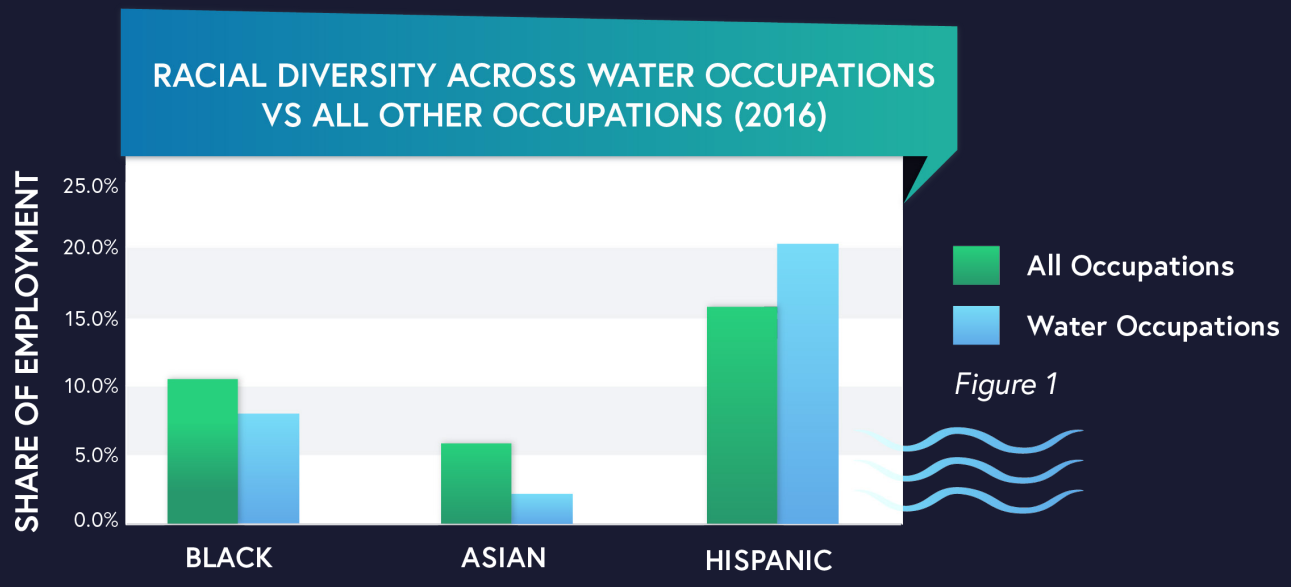
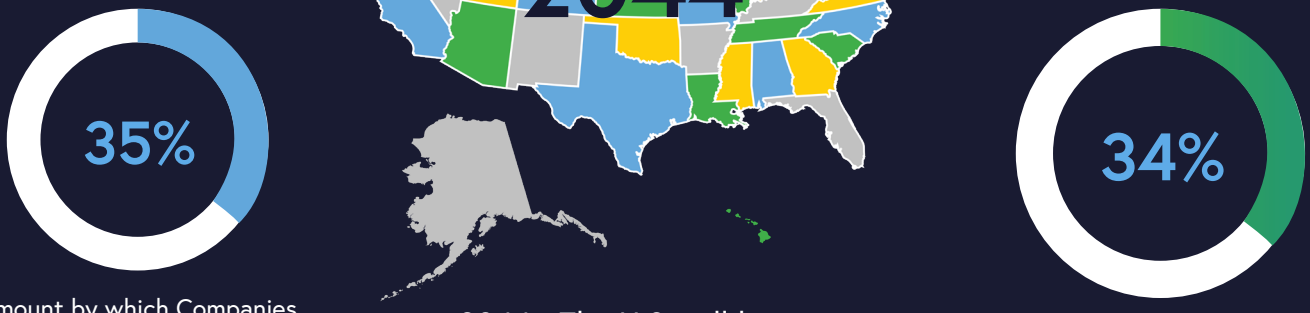


Figure 1

Source: Brookings analysis of BLS Occupational Employment Statistics and CPS data (2018)

DIVERSITY IN AMERICA



Amount by which Companies with a **Diverse Workforce Outperform their Competitors**

2044 - The U.S. will be a **multi-ethnic majority country.**

2020 - 34% of the Workforce will be **Millennials**

Source: National Utilities Diversity Council September 19, 2017

CONCLUSION

It is essential that the African American community across the U.S. **become more aware of the vast opportunities in the water sector**, including the aims and mission of the water utility of the future that promotes more community engagement, empowerment and economic development. Youth with an environmental justice passion can find rewarding careers, such as a construction field inspector or regulatory analyst to make sure that water facilities and operations, often located in communities of color, meet codes and regulations. Change and opportunities however, require concerted efforts and strong partnerships that create inclusive, innovative and diverse workforce development strategies at the local, regional, and national levels. Without the required national investments to fund workforce training and education programs from political leaders, utilities and local and state actors, the gap in skilled workers will remain unresolved. African Americans will also remain excluded from pipeline careers that protect public health, contribute to a greener future, and expand deeply needed economic opportunities.

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