



WOMEN  
in WATER  
UTILITIES  
**BREAKING  
BARRIERS**





#### **About the Water Global Practice**

Launched in 2014, the World Bank Group's Water Global Practice brings together financing, knowledge, and implementation in one platform. By combining the Bank's global knowledge with country investments, this model generates more firepower for transformational solutions to help countries grow sustainably.

Please visit us at [www.worldbank.org/water](http://www.worldbank.org/water) or follow us on Twitter at @WorldBankWater.

#### **About GWSP**

This publication received the support of the Global Water Security & Sanitation Partnership (GWSP). GWSP is a multidonor trust fund administered by the World Bank's Water Global Practice and supported by Australia's Department of Foreign Affairs and Trade; the Bill & Melinda Gates Foundation; The Netherlands' Ministry of Foreign Trade and Development Cooperation; Norway's Ministry of Foreign Affairs; the Rockefeller Foundation; the Swedish International Development Cooperation Agency; Switzerland's State Secretariat for Economic Affairs; the Swiss Agency for Development and Cooperation; Irish Aid; and the U.K. Department for International Development.

Please visit us at [www.worldbank.org/gwsp](http://www.worldbank.org/gwsp) or follow us on Twitter #gwsp.

WOMEN  
in WATER  
UTILITIES  
**BREAKING  
BARRIERS**



© 2019 International Bank for Reconstruction and Development / The World Bank

1818 H Street NW, Washington, DC 20433

Telephone: 202-473-1000; Internet: [www.worldbank.org](http://www.worldbank.org)

This work is a product of the staff of The World Bank with external contributions. The findings, interpretations, and conclusions expressed in this work do not necessarily reflect the views of The World Bank, its Board of Executive Directors, or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

#### Rights and Permissions

The material in this work is subject to copyright. Because The World Bank encourages dissemination of its knowledge, this work may be reproduced, in whole or in part, for noncommercial purposes as long as full attribution to this work is given.

Please cite the work as follows: World Bank. 2019. "Women in Water Utilities: Breaking Barriers." World Bank, Washington, DC.

Any queries on rights and licenses, including subsidiary rights, should be addressed to World Bank Publications, The World Bank Group, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2625; e-mail: [pubrights@worldbank.org](mailto:pubrights@worldbank.org)

Cover and report design: Takayo Fredericks.

# TABLE OF CONTENTS

	FOREWORD	v
	ACKNOWLEDGMENTS	vi
	ABBREVIATIONS	vii
<b>EXECUTIVE SUMMARY</b>		<b>ix</b>
<b>CHAPTER</b>	<b>INTRODUCTION: Background, Purpose, and Methodology</b>	<b>1</b>
<b>1</b>	BACKGROUND	2
	PURPOSE, TARGET AUDIENCE, AND SCOPE	8
	METHODOLOGY	8
	STRUCTURE	9
<b>CHAPTER</b>	<b>FROM TRICKLE TO STREAM: Increasing the Supply of the Female Workforce in Water</b>	<b>11</b>
<b>2</b>	BARRIERS TO WOMEN'S ATTRACTION TO THE WATER SECTOR	13
	PROMISING APPROACHES TO ADDRESS THE BARRIERS TO ATTRACTING WOMEN	16
	At a Glance: Attracting Women to the Water Sector	19
<b>CHAPTER</b>	<b>TAPPING INTO FEMALE TALENT: Recruiting Women into the Water Sector</b>	<b>21</b>
<b>3</b>	BARRIERS TO WOMEN'S RECRUITMENT TO THE WATER SECTOR	22
	PROMISING APPROACHES TO ADDRESS THE BARRIERS TO RECRUIT WOMEN	24
	At a Glance: Recruiting Women to Water Utilities	26
<b>CHAPTER</b>	<b>FIXING THE LEAKS: Retaining Female Talent in the Water Sector</b>	<b>29</b>
<b>4</b>	BARRIERS TO WOMEN'S RETENTION IN THE WATER SECTOR	31
	PROMISING APPROACHES TO ADDRESS THE BARRIERS TO RETAINING WOMEN	37
	At a Glance: Retaining Women in the Water Sector	40
<b>CHAPTER</b>	<b>ROOM TO GROW: Building Career Advancement Paths for Female Employees</b>	<b>43</b>
<b>5</b>	BARRIERS TO WOMEN'S ADVANCEMENT IN THE WATER SECTOR	44
	PROMISING APPROACHES TO ADDRESS THE BARRIERS TO ADVANCING WOMEN	47
	At a Glance: Supporting Women's Advancement in the Water Sector	50
<b>CHAPTER</b>	<b>THE WAY FORWARD</b>	<b>53</b>
<b>6</b>	CREATING A GENDER-INCLUSIVE WORKPLACE ENVIRONMENT AT THE UTILITY LEVEL	54
	AN ENABLING ENVIRONMENT AT THE NATIONAL AND SECTORAL LEVEL	56
	<b>CONCLUDING REMARKS</b>	<b>58</b>
	APPENDIX A: INTERVENTIONS FOR UTILITIES TO INCREASE WOMEN'S ATTRACTION, RECRUITMENT, RETENTION, AND ADVANCEMENT	61
	APPENDIX B: WORLD BANK UTILITY SURVEY RESPONDENTS	64
	APPENDIX C: METHODOLOGY	66
	REFERENCES	69



# WOMEN IN WATER UTILITIES: BREAKING BARRIERS

## FOREWORD

The crucial role women play in managing and safeguarding water at the domestic and community level has long been recognized. Across the world, women and girls bear the brunt of collecting water—often from long distances or in harsh conditions—and usually bear responsibility for household hygiene and sanitation needs. What has been less explored is the intersection between water, gender, and employment. Water is a crucial source of jobs, both directly, as an employer in water services, and indirectly, through the economic opportunities that depend on water.

That women are mostly absent as actors in managing water resources and water infrastructure presents both a challenge and an untapped opportunity the world over. Encouraging and facilitating women's employment in the water sector are areas through which we can make a dent in gender inequality and contribute to achieving the Sustainable Development Goals. The World Bank's Gender Strategy emphasizes the importance of removing constraints to more and better jobs, because increasing women's participation in the labor force and increasing their income-earning opportunities are central to the achievement of the World Bank's twin goals of eliminating extreme poverty and boosting shared prosperity.

This report contributes to the knowledge on the nexus between water, gender, and employment. It draws on empirical evidence that clearly shows that women are significantly underrepresented in the water sector. The report argues that to meet the growing demands for water and sanitation services, water utilities will have to expand the talent pool of skilled water professionals to align with the evolving needs. This requires drawing on all available talent, including women.

The report lays out examples of opportunities and approaches that water and sanitation service providers can adopt to reduce and eliminate the barriers that women confront in entering and working in the water sector. Through tailored interventions, utilities can address the specific needs of their utility and thereby ensure that they have the best possible trained and skilled workforce, including women, to support them in their task of providing water and sanitation services to all.

We hope the evidence and ideas in this report help water utilities harness the untapped potential of women to deliver services for all.



**Jennifer Sara**

Global Director, Water Global Practice, World Bank

## ACKNOWLEDGMENTS

The report was prepared under the guidance of Soma Ghosh Moulik by a core team led by Kamila Galeza and comprised of Gaia Hatzfeldt, Jessica Gesund Forero, Ayumi Koyama, Jason Russ, and Elaine Panter. The extended team included Christian Borja-Vega, Alexander Danilenko, Rebecca Gilsdorf, and Toyoko Kodama. Maheen Zehra contributed to the concept stage of the report, and Ursula Casabonne provided valuable support and advice on the report structure. The team is grateful to Jennifer Sara, Alexander Bakalian, Richard Damania, and Ayat Soliman for their leadership and guidance. The team is also grateful to the peer reviewers: Maria Beatriz Orlando, Pier Mantovani, Nishtha Mehta (World Bank), and Ana Gren (Sida). Written comments were received from Thadeu Abicalil, Ayat Soliman, Clementine Stip (World Bank), Monika Weber-Fahr (GWP), and Mohammad Said Al Hmaid (WSRC). In addition, Lizmara Kirchner, Susanna Smets, and Gerard Soppe provided valuable suggestions and input.

Qualitative case studies that informed the report were conducted by Tasokwa Kakota and Gaia Hatzfeldt (Malawi); Sandra Kdolsky, Natallia Shcherbina, and Susanna Smets (Belarus); and Nemat Guenena and Cathie Wissa (Egypt). The team thanks all participants of focus group discussions and the management teams of utilities and ministries for their participation in this research. The team appreciates the support of the project teams: Amal Faltas, Osama Hamad, Sanyu Lutalo, Josses Mugabi, Odete Muximpua, and Heba Yaken Aref Ahmed. A special thanks to all interviewees who took the time to share with us their insights and experiences.

The report team gratefully acknowledges advice and contributions from Esteban Ferro, Tom Farole, Lourdes Elena Garcia Aviles, Alicia Hammond, Jelena Lukic, Pranav Vaidya, and Inka Schomer (World Bank); Portia Persley, Corinne Hart, and Sylvia Cabus (USAID); and Louisa Gosling and Olutayo Bankole-Bolawole (WaterAid). Special thanks are due to Maitreyi Das for initiating the study.

This report was made possible thanks to the management and staff of utilities who responded to the World Bank Utility Survey and to World Bank colleagues who supported the collection of data: Arif Ahamed, Christopher Ancheta, Alexander Bakalian, Jean-Martin Brault, Anna Cestari, Rita Cestti, Camilo Cordoba, Stephane Dahan, Adnan Ghosheh, Chris Heymans, John Ikeda, Phyrum Kov, Patricia Lopez, Pier Mantovani, Eliana Jimenez Rico, Elvira Cusiyoqllor Broeks Motta, Yogita Mumssen, Dambudzo Muzenda, Gustavo Saltiel, Maria Angelica Sotomayor, Clementine Stip, Carolina Dominguez Torres, Catherine Tovey, Miguel Vargas-Ramirez, and Lilian Pena Pereira Weiss.

The team is grateful to the Pacific Water and Wastewater Association, International Water Association, USAID, Brasov Water Company, Prishtina Regional Water Company, Tirana Water Utility, Danube Water Program, the Global Water Partnership, Sida, WaterAid, and Water Youth Network for their time, engagement, and dialogue, which contributed to the report. Many thanks to Pascal Saura and Erin Ann Barrett for publications support and to Meriem Gray, Martin Craig Hall, and Li Lou for their advice on communications. Administrative support was provided by Marie-Adele Tchakounte Sitchet.

The report was funded by the Global Water Security and Sanitation Partnership (GWSP) and the World Bank.



## ABBREVIATIONS

ADB	Asian Development Bank
D&I	diversity and inclusion
EDGE	Economic Dividends for Gender Equality
EPS	Electric Power Industry of Serbia
EU	European Union
FGD	focus group discussion
GDP	gross domestic product
GII	Gender Inequality Index
HR	human resources
IBNET	International Benchmarking Network for Water and Sanitation Utilities
IFC	International Finance Corporation
ILO	International Labour Organization
IRENA	International Renewable Energy Agency
IWA	International Water Association
Lao PDR	Lao People's Democratic Republic
LGBTQ	lesbian, gay, bisexual, transgender, queer
MINSTAT	Mining and Utilities Statistics Database
OECD	Organisation for Economic Cooperation and Development
ONEA	Office National de l'Eau et de l'Assainissement
OSE	Obras Sanitarias del Estado
SDG	Sustainable Development Goal
STEM	science, technology, engineering, and mathematics
TVET	technical and vocational education and training
UN	United Nations
UNDP	United Nations Development Programme
UNIDO	United Nations Industrial Development Organization
U.S.	United States
USAID	U.S. Agency for International Development
WAF	Water Authority of Fiji
WBL	Women, Business and the Law
WGP	Water Global Practice
WHO	World Health Organization

All dollar amounts are U.S. dollars unless otherwise indicated.

All interviews were conducted in confidentiality, and the names of interviewees are withheld, by mutual agreement, unless otherwise indicated.



# EXECUTIVE SUMMARY

**1** **Current needs and trends in the water and sanitation sector create unprecedented change for water and sanitation service providers.** With 2.1 billion people still lacking safely managed drinking water and 4.5 billion lacking safely managed sanitation, the water and sanitation crisis is one of the global community's most pressing challenges. Service providers are under increased pressure to provide services to communities traditionally excluded and to reach remote or low-income areas. Emerging global trends, such as rapid urbanization and climate change, put further pressure on the scarce natural resource of water. At the same time, as important service providers in urban areas, water and sanitation utilities have a key role to play in achieving United Nations (UN) Sustainable Development Goal 6, to "ensure availability and sustainable management of water and sanitation for all." To meet these challenges, water utilities need to increase their productivity and become more efficient. This will require tapping into new approaches, technologies, and solutions, as well as renewing the water workforce to meet emerging needs and move away from business as usual. By hiring, managing, and training a more diverse mix of employees, new and fresh perspectives can help shape the water utilities of the future.

**2** **Utilities can play an important role in reducing and eliminating barriers faced by women.** This study presents a first-of-its-kind analysis that aims to heighten understanding of key barriers and bottlenecks that women face in their career in the water sector and identify interventions that water companies can put in place to increase gender diversity in the water workforce. The report draws on survey data collected from 64 water and sanitation utilities in 28 economies; focus group discussions with water utility staff in Belarus, Egypt, and Malawi; and in-depth key informant interviews with representatives of utilities, academia, and international organizations. The study also draws on secondary survey data from the International Benchmarking Network for Water and Sanitation Utilities (IBNET) and the Mining and Utilities Statistics Database (MINSTAT); gender diversity assessments from water utilities in Albania, Kosovo, and Romania conducted by the Economic Dividends for Gender Equality (EDGE) Certification Foundation and the World Bank; insights from a qualitative study on female representation in a utility in Bangladesh, conducted as part of a World Bank water and sanitation project; and an extensive review of literature on female employment in utilities and infrastructure-related sectors.

## BACKGROUND

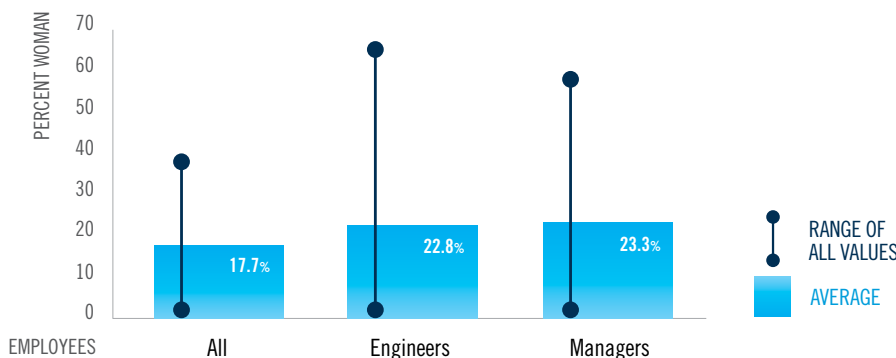
**3 Women are an untapped pool of talent for the water sector.** Data collected for this study from 64 water and sanitation service providers in 28 economies around the world show that the percentage of female workers is considerably lower than that of men: on average, utilities in the sample reported that only 18 percent of their workers are women—that’s fewer than one in five (figure ES.1). Wide heterogeneity was found among the utilities surveyed. For example, although, on average, 23 percent of engineers and managers in a utility are female, 32 percent of the sampled utilities had no female engineers and 12 percent had no female managers. Other sources and literature corroborate these findings and show that the water sector continues to employ a far higher number of men than women, especially in technical fields (IWA 2016). A World Bank report on the links between water and gender found that “the low number of women in water-related technical roles reflects their overall exclusion from such jobs” and is a representation of broader labor market trends (Das 2017).

**4 Despite low percentages of female representation, some evidence suggests that the proportion of female water professionals has grown in the past few years.** Data on participation in water utilities from 2011 and 2016 show a steady increase in the percentage of female employees (IBNET; figure ES.2). This may be a positive sign that the sector is changing toward improved female representation. Nevertheless, the pace of change is far too slow, and there is significant work to be done if gender parity is to be achieved.



**5 Modern utilities are evolving and becoming more customer oriented.** Utilities are creating new departments to respond to emerging needs, mainly in client-facing areas such as customer service divisions. Many positions seen today did not exist 20 years ago, so the utilities of today and tomorrow need staff with more diverse skill sets. Because of technology and digitization, certain jobs no longer require physical strength. Human resource management can play a central role in preparing utilities to respond to these changes and promoting more diverse professional backgrounds among utility staff. By expanding the talent pool to truly include women, a utility can choose from the most talented recruiting pool to address the sector’s evolving needs.

**FIGURE ES.1: AVERAGE SHARE OF EMPLOYEES IN A WATER UTILITY THAT ARE WOMEN, 2018–19**



Source: World Bank Utility Survey 2018–19.

Notes: Responses to the World Bank Utility Survey (N = 64 water and sanitation utilities in 28 economies). Bars show the utility average, and lines show the range of all values. Engineers are defined as licensed engineers working in the utility. Managers are employees in leadership positions and decision-making roles and can comprise upper-, middle-, and lower-level management.

**6 Increasing women’s participation in water utilities benefits women, the community, and the organization.** Women benefit by gaining access to more and better jobs. Communities gain better representation in water-managing bodies, which evidence suggests can lead to better community relations, among other benefits. In addition, a growing body of literature indicates numerous benefits of gender diversity on organizational outcomes. For instance, evidence from the private sector suggests that gender-diverse companies tend to outperform less diverse companies in terms of return on equity. Similarly, several studies link greater diversity to an expanded mix of skills, which is found to lead to greater innovation. Gender diversity also improves customer satisfaction, because involving women in the design, operation, and maintenance of water supply systems often results in improved user-friendly and female-friendly design. Because women are key clients for water and sanitation utilities, a more gender-diverse workforce can help utilities better understand and respond to the concerns and needs of female clients (GWA 2011; Hunt et al. 2018; IWA 2016) and lead to improved customer satisfaction (Thompson et al. 2017).

**“If utilities gave motivational speeches to universities, more female graduates may consider working in water utilities. For now, it seems to them like an unattractive job provider.”**

—Female water quality officer, Ghana

**“For women to be taken seriously they have to work twice as hard, even if they are in the same positions as men or applying to the same positions.”**

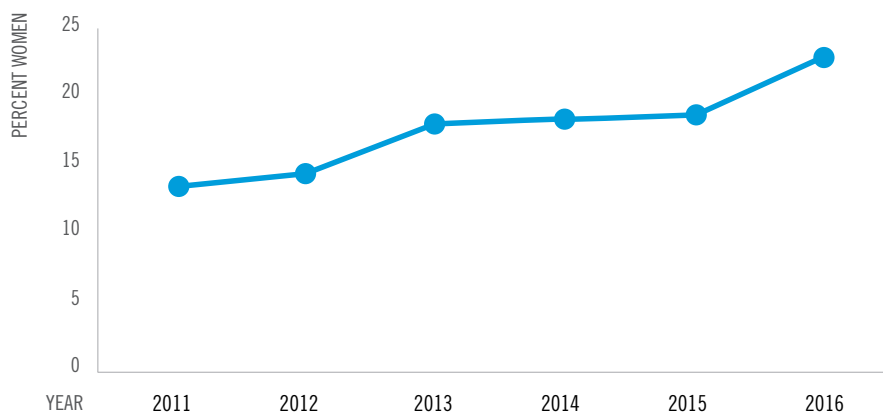
—Female water utility employee, Kosovo

**7 Removing constraints to better jobs for women has wider economic and financial benefits at the national level.** For governments, there is a compelling financial argument for promoting greater gender inclusion in the workforce: gender inequality and occupational sex segregation have proved costly. A World Bank study in 141 countries found that women, in comparison to men, earn less and have lower human capital wealth, defined as the value of the future earnings of a country’s adult citizens. This inequality results in US\$160.2 trillion of losses in human capital wealth globally (Wodon and de la Brière 2018). Studies have shown that gross domestic product (GDP) increases with higher female participation in the workforce. In Organisation for Economic Cooperation and Development (OECD) countries, where the gender gap is presumed to be smaller, a 50 percent reduction in the male–female employment gap is estimated to lead to a GDP gain of 6 percent by 2030 (OECD 2015).

**“It could be helpful to ensure women are aware that there is a potential to apply to these positions—that positions are open, and that they are just as suited to apply.”**

—Female employee, Kosovo

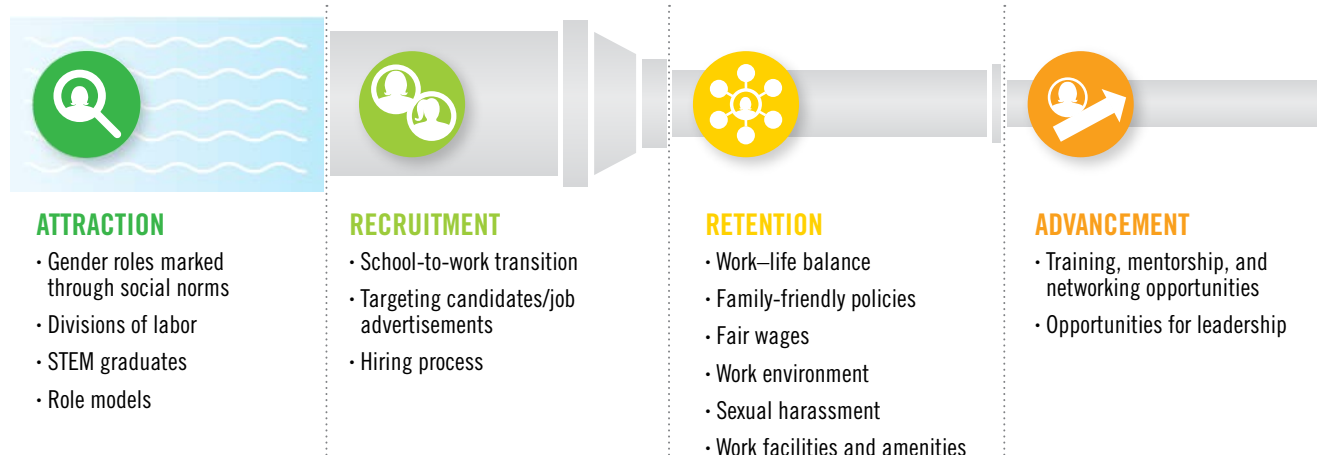
**FIGURE ES.2: TRENDS IN THE SHARE OF FEMALE WORKERS IN WATER UTILITIES**



Source: IBNET.

Notes: Data includes 362 annual observations from utilities for the years 2011-2016. Utilities are included only if they have available data for at least four of the six years in the period. The ratio of women to total employees is calculated at the annual level for each utility and then averaged across utilities in the same year.

**FIGURE ES.3: EMPLOYEE CAREER CYCLE IN THE UTILITY SECTOR**



Source: Authors Note: STEM = science, technology, engineering, and mathematics.

**8 Women face barriers in accessing equal employment in water utilities throughout their career trajectory.** Employing a career cycle framework, this report identifies four stages in a career cycle in which barriers manifest for women’s employment: attraction, recruitment, retention, and advancement (figure ES.3). At each stage, as will be examined in closer detail in various chapters of this report, institutional and social practices can act as both enablers of and barriers to the development of a woman’s career in water utilities.

**“The utility is so male dominated, that within weeks of joining the utility, most women want to leave! The utility needs to hire more women so that a culture is created where everyone feels comfortable.”**

—Female water quality officer, Ghana

**“Most women do not like to work during odd hours because of some family commitments such as nursing babies.”**

—Female FGD participant, Malawi

## BARRIERS AND PROMISING APPROACHES

**9 Attraction: because of entrenched social norms and practices, water utilities and other infrastructure sectors often do not attract women.** Findings from this study suggest that some key constraints to women’s participation in the water sector pertain to broad societal and national-level challenges. These include gender norms and stereotypes, occupational segregation, and the low share of women graduating from science, technology, engineering, and mathematics (STEM) fields. The chain of barriers begins in education, with a low number of women graduating in STEM fields or from technical and vocational education and training (TVET) programs. Even with such training, women are likely to be deterred from entering water utilities because gender norms label the work as too dirty, dangerous, or heavy. Those women who do work in the utilities tend to be employed in domains traditionally considered female, such as administration, customer relations, and finance and accounting, rather than the more expansive and generally higher-paying technical domains of engineering, supervision, operations and maintenance. The dearth of female role models in the sector also contributes to the low number of women attracted to the water workforce. Initiatives that utilities can adopt to attract more women to the sector and overcome some gendered social norms include developing outreach programs for schools, sponsoring scholarships for women in STEM, or introducing technical and training programs targeting women, as some utilities described in this report have done.

**10 Recruitment: women may face barriers in the recruitment process of water utilities.** Data from the World Bank Utility Survey show that over a 12-month period, only 20 percent of new hires were female. Some challenges women face in being recruited to water utilities lie in biased hiring processes, including discriminatory language in job postings and implicit biases that affect members of the hiring panel. Women are typically not targeted in job placement programs or other school-to-work transitions. When they are considered for positions, evidence suggests male applicants are favored over female candidates in most STEM-related fields. In some economies, women are even legally prohibited from being hired in the water sector. Small investments into overcoming biases in the hiring process can expand the talent pool to the most skilled and experienced candidates and thereby produce economic benefits for a water utility. Gender-neutral job descriptions, removal of gender markers from application documents, structured interviews, and gender-diverse panels can mitigate the barriers and hidden biases female applicants face. Other promising approaches that utilities have adopted include job training and placement programs, internships and apprenticeships, and incentives and diversity targets.

**11 Retention: retention of women in water utilities is hampered by a lack of gender-sensitive policies and a discriminatory workplace environment.** World Bank Utility Survey data reveal that female employees leave water companies at a higher rate than men. Data for 2018 show that on average, women leave water utilities at a rate of 8 percent throughout the year, compared with 5 percent for men. Reasons cited by workers include insufficient flexibility in arrangements that enable women to reconcile work and caregiving roles, a feeling of isolation in a male-dominated environment, a lack of basic amenities in the workplace (such as separate toilets by gender, changing rooms, and sanitary facilities), and sexual harassment. All of these factors create challenges in reducing turnover and retaining a skilled female workforce. In response, some utilities have introduced more family-friendly policies (for example, flexible work arrangements and childcare options), sexual harassment protection mechanisms (via anti-harassment policies and training, codes of conduct, and safe field-site accommodation for women operators), improved working facilities (separate toilets, lactation rooms, and so on), and policies to remove salary inequities.



**“Salary is equal—but women are put in lower paid jobs. By law we are equal, but in practice it is not so.”**

*—Female engineer and manager, Serbia*

## **12. Advancement: women in water utilities do not always have the same opportunities as men to advance in their career.**

Unequal access to job training and career advancement opportunities can affect women’s professional realization and career progression in the sector. The literature suggests that oftentimes female employees are not given equal opportunities to advance in their careers. Data from the World Bank Utility Survey provide contrasting findings. According to the survey data, proportionately speaking, women on average receive more opportunities for training and have similar or slightly higher chances of getting promoted than men. For instance, in 2018, 4.4 percent of men, on average, were promoted in the previous 12 months compared with 5.4 percent of women. When it comes to perceptions, however, qualitative data collected for this study suggest that female employees do not always perceive that they are given equal opportunities to advance in their career. Most women who participated in discussions or interviews for the study agreed that they must work especially hard to prove that they are as capable as men or are ready for more levels of responsibility. Regardless of whether female managers are promoted at higher rates than male managers or not, it is irrefutable that in absolute terms, there are fewer women in managerial positions. Some practical examples that can help increase opportunities for the advancement and career development of female employees in the water sector include increased training options (adjusting training times and locations can make these opportunities more accessible to both men and women), mentorship and networking programs, female leadership programs, and succession plans that are inclusive of women. Other measures to consider are transparent promotion processes and criteria, performance systems that identify talented women to be promoted, targets for gender composition in leadership positions, and incentives for women to aspire to a career in the organization.

## **13. To be effective, interventions by water utilities to increase female participation must be targeted and tailored to address the barriers that women face in each specific context.**

This will require concerted efforts, especially from leadership, to ensure women are provided with relevant opportunities to enter the sector and advance their careers. Although the challenges women face are often universal (affecting service providers in countries across all income levels), the policy mix and actions will need to be designed with a strong understanding of the specific context. Legal, institutional, political, social, and cultural considerations vary across countries, and these affect the roles that women are expected to play in the water sector. Therefore, these considerations are important to understand before determining which gender diversity measures are appropriate. Because water-managing bodies are diverse—private or public, with differences in managerial structure and autonomy, population served, utility size, or age composition of the staff—they face unique challenges that need to be considered when designing measures to address gender diversity at the utility level.

## **14. Although the report focuses on service providers, creating an enabling environment at the national and sectoral level is important to facilitating changes on the ground.**

Gender equality is increasingly embedded in national constitutions, laws, sector strategies, or incentives for improving conditions for female professionals. However, many countries still have job restrictions and other discriminatory laws that limit women’s equal access to the water sector. Reforming these laws and adopting gender-friendly policies, such as offering maternity and paternity leave that would allow women to compete with men on an equal footing in the sector, are also important if gender inclusion is to flourish at the national level.

## **15. There is no silver bullet solution to foster gender equality in the water workforce, but water utilities can adopt various promising approaches and interventions.**

Each utility varies, as do the experiences and needs of their employees. In each context, depending on the salient issues, a different mix of approaches is relevant. A global mapping of initiatives from water and related sectors carried out for this study highlights a range of promising approaches that utilities can, and do, adopt to enhance gender diversity. Examples of approaches and policy reforms that water utilities can undertake to increase female participation at each step of the career cycle are laid out in appendix a in the main report.







# INTRODUCTION:

## Background, Purpose and Methodology

**M**any developing and emerging economies lack significant numbers of water professionals with the necessary knowledge, experience, and specialist skills to meet the rising demand for water and sanitation services. Based on data collected from 64 water utility companies in 28 economies, women compose merely 18 percent of workers. Evidence suggests that increasing gender diversity in the water sector workforce can help expand the talent pool and strengthen water utilities' financial performance, innovative capacity, operating efficiency, customer relations, and so on. But what keeps women from considering careers in this field? What prevents them from being hired, remaining in the workplace, and being promoted? What challenges do they face that their male counterparts perhaps do not? Drawing from primary and secondary quantitative and qualitative data from water utility companies, this report identifies key barriers and bottlenecks that women face at each stage in the career cycle (attraction, recruitment, retention, and advancement), as well as ways of making policy and systematic changes toward greater inclusion of women in the water workforce.

# BACKGROUND

## Why Talk About Jobs for Women in Water?

**As the world reaches toward the ambitious goal of providing water and sanitation services for all, many challenges lay ahead.** Despite advancements, 2.1 billion people lack safely managed drinking water and 4.5 billion lack safely managed sanitation (WHO and UNICEF 2017), causing premature deaths, chronic diseases, missed education, and reduced productivity. Emerging global trends put further pressure on the scarce resource of water. Rapid urbanization is expected to see 2.5 billion more people become city dwellers by 2050, further increasing demand for urban water and sanitation services (UN DESA 2018). Climate change, with accompanying droughts, floods, and other extreme weather events, puts additional pressure on a resource that is already scarce in many parts of the world. To date, the world is not on track to deliver United Nations (UN) Sustainable Development Goal (SDG) 6, to “ensure availability and sustainable management of water and sanitation for all” (UN 2018).

**Pressure for water and sanitation utilities is growing, because they are at the forefront of efforts to ensure availability and sustainable management of water and sanitation.** There is therefore an urgent need to ensure that our world’s water and sanitation service providers are as productive and well run as possible. Key to this is expanding the talent pool for skilled water professionals, particularly for a sector with a customer base as diverse and universal as that served by the water sector. To meet the increasing demands for water supply and sanitation services, the workforce of the sector will need to be enhanced and the skill sets will need to be diversified, which requires drawing on all available talent. A diverse labor pool entails including women in the equation. They represent half of the world’s population, and attracting them to the sector is likely to expand the talent pool.

**Data collected for this study, and verified by other studies (see, for example, IWA 2016), showed that the water sector continues to employ a far higher number of men than women, especially in technical fields.** A recent World Bank report, which explores links between water and gender,<sup>1</sup> found that “the low number of women in water-related technical roles reflects their overall exclusion from such jobs” and is a representation of broader labor market

trends (Das 2017, 21). Among multiple barriers faced by women, the report cited social and institutional barriers, gender stereotypes, lack of female role models, and an engineering culture typical in male-dominated fields like water. The report also ascertained that improving gender relations in the water arena can have a strong influence on gender equality more broadly—a standalone SDG (Goal 5) and a priority for countries the world over.

**Removing barriers to female employment benefits women, their families, and their communities—and can benefit utilities.** Although not always specifically in reference to the water sector, a large indicative body of literature points to the numerous benefits of gender diversity in the workplace (box 1.1). For instance, because women are key clients for water and sanitation services, a more gender-diverse workforce would help utilities better understand and respond to the concerns and needs of female clients (GWA 2011; Hunt et al. 2018; IWA 2016). This can, in turn, lead to improved customer satisfaction (Thompson et al. 2017). In addition, evidence shows that diverse companies tend to be more innovative, perform better, enjoy better decision making, and provide better service. A recent International Labour Organization (ILO) study found that gender diversity improves business outcomes. It found that from the 13,000 enterprises in 70 countries surveyed, 74 percent of the enterprises that implemented and tracked the impact of initiatives to promote gender diversity in management reported profit increases of 5 to 20 percent (ILO 2019c).

**Removing constraints to better jobs for women has social, economic, and financial benefits.** For governments, there are compelling financial arguments for including women in the workforce. For one, gender inequality and occupational sex segregation are costly. A recent World Bank study in 141 countries found that women have lower earnings and lower human capital wealth than men and that this inequality results in US\$160.2 trillion of losses in human capital wealth globally (Wodon and de la Brière 2018). Studies have shown that gross domestic product (GDP) increases with increased female participation in the workforce. In OECD countries, where the gender gap is presumed to be smaller, a 50 percent reduction in this gap is estimated to lead to a GDP gain of 6 percent by 2030 (OECD 2015).

## BOX 1.1: BENEFITS OF GENDER DIVERSITY IN THE WORKPLACE

- **Better financial performance.** From a sample of more than 1,000 companies covering 12 countries, companies that ranked in the top quartile for gender diversity on executive teams were 21 percent more likely to outperform on profitability and 27 percent more likely to rank higher in value creation (Hunt et al. 2018). According to data on the Bombay Stock Exchange, from among the top 30 companies, companies with female chief executives have the strongest annual growth rates (Catalyst 2013). In the United States, companies with diverse executive boards have a 95 percent higher return on equity than companies that do not have such diverse boards (Barta, Kleiner, and Neumann 2012). In the energy sector, utilities with gender-diverse boards have a significantly higher return on equity than those with less diversity (Ernst and Young 2016).
- **Greater innovation.** Evidence from the private sector links greater diversity with better company outcomes, suggesting that, for example, expanding the mix of skills can lead to greater innovation (Corbett and Hill 2015; Deloitte 2013; Hewlett, Marshall, and Sherbin 2013). A study of research and development teams at more than 4,000 companies found that gender diversity “generates certain dynamics that foster novel solutions leading to radical innovation” (Díaz-García, González-Moreno, and Sáez-Martínez 2013, 149). Moreover, research suggests that women score as well as or better than men in key innovation capacities, including in areas such as taking initiative, inspiring and motivating others, and championing change (Folkman 2015).
- **Better decision making.** Diversity at the top of an organization can lead to better decision making and governance (Adams and Ferreira 2009; Reynolds and Lewis 2017). Zhang and Huo (2012) found that gender-diverse workgroups in China performed better and had overall lower levels of conflict. Adams and Ferreira (2009) found that more gender-diverse boards are tougher monitors, tend to have less absenteeism, have more performance-based financial incentives for directors, and meet more often.
- **Improved customer satisfaction.** With the nature of utility work changing (such as an increasing shift toward service provision from infrastructure construction), it will be increasingly important to have a diverse workforce that understands and represents its clients. Involving women in the design, operation, and maintenance of water supply systems is seen to result in improved user-friendly design that addresses the needs of women. This, in turn, leads to improved customer satisfaction (IFC 2019; Thompson et al. 2017).
- **Improved service delivery.** An Organisation for Economic Cooperation and Development (OECD) study on the public sectors of 26 European Union (EU) countries found that workforce diversity can improve public service quality, as well as produce efficiency gains, increase policy effectiveness, enhance social mobility, and contribute to advancing the reform agenda (OECD 2009).
- **Better governance.** Greater representation of women in policy and regulatory roles helps increase awareness of the concerns and needs of women. Their perspectives can influence how sectors are governed, by whom, and how resources are accessed and controlled. For example, research from India indicated that the number of drinking water projects in areas with female-led councils was 62 percent higher than in those with male-led councils (Thompson et al. 2017).
- **Improved employee retention.** When the work environment is perceived to be diverse and welcoming to different groups of people, employees are more likely to feel satisfied with their work and, consequently, are less likely to leave the organization (Ali, Metz, and Kulik 2015). Higher levels of gender diversity and human resource policies and practices that focus on gender diversity are linked to lower levels of employee turnover (Catalyst 2013). Because recruiting and training new employees is costly for companies, a lower rate of employee turnover can lead to savings and improved productivity.
- **Better outcomes for sustainability and compliance.** Companies with more gender-inclusive senior leadership—particularly women-owned businesses—often rank higher on key environmental, social, and governance risk management indicators (OECD 2016). In addition, companies with more gender-diverse senior management tend to have greater “public accountability, social justice, full participation and compliance with international conventions or national legislation” (IFC 2018b, 11).
- **Safer operating environment.** Numerous studies have demonstrated that female employees are often more likely to follow safety protocols, treat equipment responsibly, and safely operate equipment (IFC 2013).<sup>2</sup>
- **Improved community relations.** Gender diversity in the workforce is correlated with improved community relations (Di Miceli and Donaggio 2018). A gender-diverse staff gives companies a greater ability to internalize and respond to community concerns.

## Where Do Water Utilities Stand in Terms of Gender Diversity?

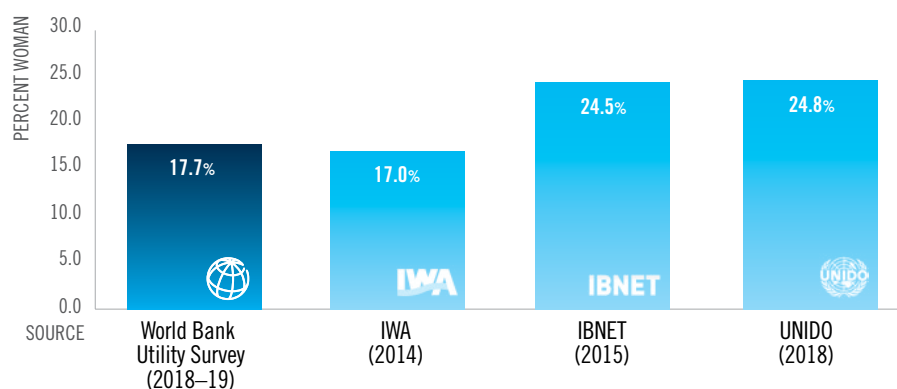
**Water workers are predominantly male, particularly among positions in skilled trades.** Unfortunately, a data set that samples the full population of women in the water sector across the globe does not exist. To understand the landscape of where male and female workers are concentrated, the World Bank Utility Survey was developed for this study and sampled 64 water and sanitation utilities in 28 primarily low- and middle-income economies. Overall, the survey found that on average, women make up 18 percent of the workforce in water utilities in the sample. Data from the survey are consistent with data drawn from several other data sets and sources: women make up between 17 and 25 percent of water utility workers (figure 1.1).

**Data from the World Bank Utility Survey administered by this study and data from the International Benchmarking Network for Water and Sanitation Utilities (IBNET), a global benchmarking database, revealed variance among countries.** Across utilities in the Federated States of Micronesia, for example, women represent 63 percent of the workforce, and in Mongolia, women represent 48 percent of the workforce. In other places, the percentages of female employees in water utilities are well below the international average. In Bangladesh and in West Bank and Gaza, women represent only 6 percent of the workforce (IBNET 2015; World Bank Utility Survey 2018–19; figure 1.2). This challenge is hardly unique to low- and middle-income economies. Brookings Institution, a think tank, reports that in the United States, women represent only 15 percent of water workforce, and they occupy primarily administrative positions, often working as secretaries or receptionists (Kane and Tomer 2018).

**Data collected for this report show that women face bottlenecks along their entire career trajectory.** Through a range of social norms and practices, they are often not attracted to infrastructure sectors, such as water utilities; they are likely to be left out from recruitment practices or discriminated against in hiring processes; once in the water workforce, the working environment and practices typically do not cater to their needs and priorities; and they are often offered fewer opportunities to advance in their careers, such as through access to training or leadership positions. All of these hurdles are captured through the employee career cycle (figure 1.3). Each step in the career cycle is made up of institutional and social practices that can act as enablers or barriers to the development of a career. This employee career cycle is the organizing framework used throughout the report.

**Underrepresentation of women is not unique to the water sector.** An analysis conducted for the extractives sector showed that oil services and mining sectors employed the fewest women at 11 and 17 percent of total employees in their respective industries (UNIDO 2018). This is paralleled in other public and private-sector institutions, such as in the energy sector, in which 13 percent of employees are reported to be women, according to a study of 14 utilities (USAID 2016b), and only 5 percent of executive board members of the top energy utilities are women (Ernst and Young 2016). As in the water sector, there are country variations in the power sector; for instance, in South Asia, women make up 21 percent of the power workforce in Afghanistan but less than 1 percent in the Maldives (World Bank 2019d). Similar trends can be observed in the transport sector. In the EU, for instance, only 22 percent of the transport workforce is made up of women (Giannelos et al. 2018), and in Latin America, it is as low as 15 percent (Granada et al. 2016).

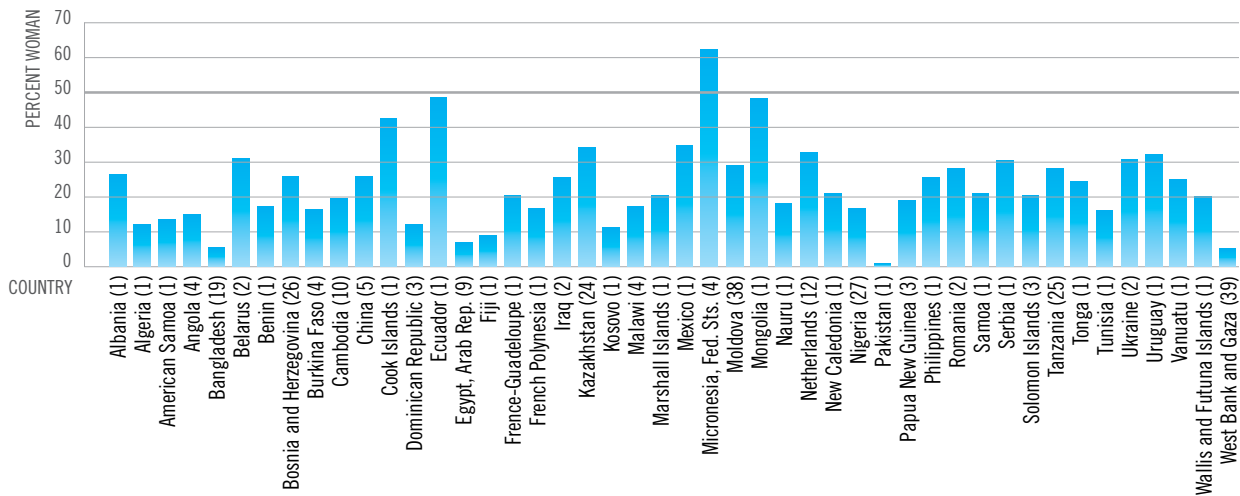
**FIGURE 1.1: WOMEN IN WATER AND SANITATION UTILITIES, FROM DIFFERENT SOURCES**



Sources: Data from IBNET 2015 (which includes 222 water utilities); IWA 2014; UNIDO 2018 (Mining and Utilities Statistics Database [MINSTAT], which includes water utilities from 15 countries); World Bank Utility Survey 2018–19 (which includes 64 water utilities).

Note: IBNET = International Benchmarking Network for Water and Sanitation Utilities; IWA = International Water Association.

**FIGURE 1.2: PERCENTAGE OF EMPLOYEES THAT ARE WOMEN IN WATER AND SANITATION UTILITIES, BY COUNTRY**



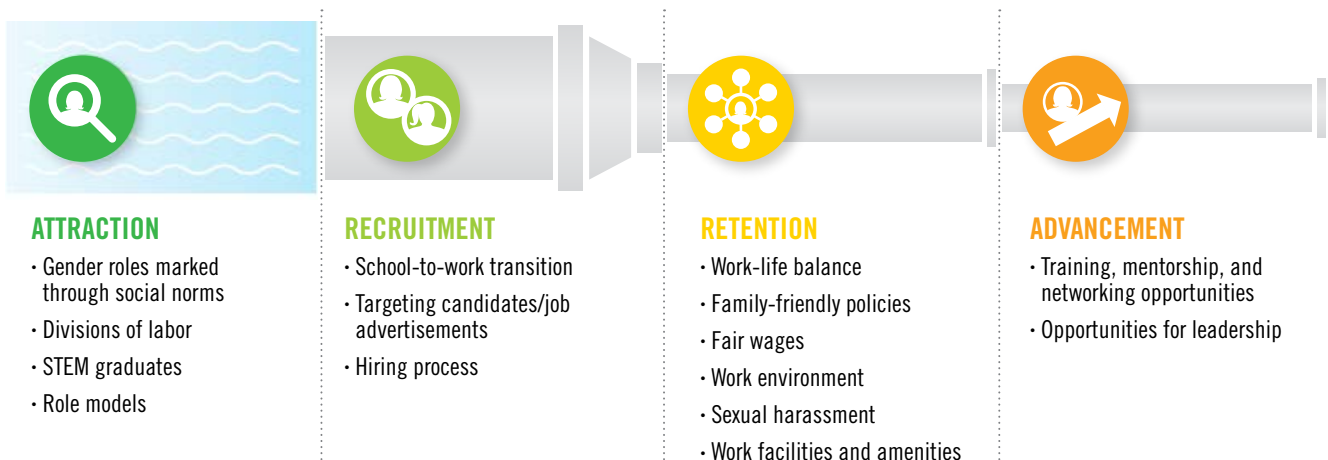
Sources: IBNET 2015; World Bank Utility Survey 2018–19.

Note: Each number in parentheses represents the total number of utilities included on average for each country. In total, data from 263 utilities are included.

**Creating an enabling environment on the national level is important to facilitate changes on the ground.** Inequalities in gender at the national level are often mirrored in the water sector. Figure 1.4 shows how women’s representation in water utilities correlates with the Gender Inequality Index (GII) produced by United Nations Development Programme (UNDP 2018). The GII measures gender inequalities across three aspects of human development: reproductive health, empowerment, and economic status. On average, a 10 percent higher GII is associated with a 3 percent drop in the share of women working in water utilities. Although this

is a mere correlation, it suggests the importance national policies can have in shaping the water industry.<sup>3</sup> Mongolia and Ecuador, for instance, two countries that score below 0.4 on the GII (0.30 and 0.39, respectively), have reached near parity in their water utility gender balance, with women comprising 48 and 49 percent of the workforce, according to IBNET. In line with this, gender equality is increasingly being embedded in national constitutions, laws, sector strategies, or incentives for improving conditions for female professionals (box 1.2).

**FIGURE 1.3: EMPLOYEE CAREER CYCLE IN THE UTILITY SECTOR**



Source: Authors Note: STEM = science, technology, engineering, and mathematics.

**FIGURE 1.4: HIGHER GENDER INEQUALITY INDEX CORRELATES WITH LOWER SHARE OF WOMEN IN UTILITIES**



Sources: Data on women in water utilities is from IBNET and the World Bank Utility Survey 2018–19. The GII is from the UN Development Programme (UNDP 2018).

Note: The graph plots the GII on the x-axis where higher values represent more gender inequality within a country. The Y-axis is the average share of women in utilities in the country according to the World Bank Utility Survey and IBNET. Each dot represents a single country and the line shows the best fit trend line between the two variables.

## Why Should Utilities Encourage Gender Diversity and Inclusion?

**Human resource (HR) management is a core component of utilities' efforts to become more modern and strengthen their performance.** The World Bank's Utility Turnaround Framework provides a comprehensive set of actions to improve water utility performance and efficiency. It emphasizes that the effective development and management of HR is one of the backbones of such turnaround (Soppe, Janson, and Piantini 2018). The objective of a utility is to provide services to customers, which requires efficiently managed HR, as shown in a success pyramid for a turnaround (figure 1.5). Delivering improved services and facilities and ensuring everyone has access to safe drinking water requires robust HR (IWA 2016).

**Some utilities face HR shortages.** A study by the International Water Association (IWA) in 15 low- and middle-income countries found severe HR shortages, with a particular lack of key skills, especially in the management, accounting, finance, and engineering professions (IWA 2014).<sup>4</sup> Similarly, the *UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS)* report by the World Health Organization (WHO) and UN-Water (2014) found that only 40 percent of utilities (which reported on operations and maintenance) had sufficient staff to operate and maintain their urban drinking water systems. Such capacity constraints in HR have economic costs, because when there is a shortage in supply of labor, utilities bear an additional cost of recruiting the required skills they need for their organization.

### BOX 1.2: INSTITUTIONALIZATION OF GENDER EQUALITY

Australia's water sector has made significant advancements in inclusion and diversity in the workforce, reflecting the Australian government's commitment to diversity. Among other things, the government requires all agencies of the Australian Public Service to establish workplace diversity programs (Australian Public Service Commission n.d.). In April 2015, Australia's Ministry for Environment, Water and Climate Change made a call of interest and supervised the recruitment process for board positions of water corporations. An independent selection panel reviewed applications to ensure that selected candidates had a diverse set of skills. As a result of such efforts, the boards of

Victorian water corporations, for example, have more women appointed as chairs, as well as two indigenous Australians and a visually impaired director (WSAA and Diversity Partners 2017). The World Bank, like many other organizations, has put in place a gender strategy that aims to close gaps between women and men and requires World Bank-supported projects and programs across regions to consider their effects on women and men (World Bank 2015). A growing number of World Bank-supported lending projects in the water sector include components to address barriers faced by women seeking employment and professional opportunities in the sector.



**BOX 1.3: THE CHANGING NATURE OF UTILITIES AND OPPORTUNITIES FOR INCLUSION**

The changing nature of work in utilities not only poses significant staffing challenges but also presents the sector with opportunities to modernize and diversify the workforce. Modern utilities are evolving and becoming more customer oriented. Staff interviewed for this report attributed growth to the creation of departments, mainly in client-facing areas such as customer service divisions. Many positions that exist today did not exist 20 years ago, and utilities need staff with more diverse skill sets as a result. In addition, the changing nature of work is driven partly by technological innovations, such as automation, smart meters, and automatic billing. Because of technology and digitization, jobs that may have required physical strength in the past now do not. In addition, nontraditional approaches and off-grid solutions, such as container-based sanitation, are

on the rise (World Bank 2019c). As more service providers enter the service delivery arena, coordination efforts will grow, calling for more diverse professional backgrounds among staff. HR management can play a central role in preparing utilities to face these changes. An example of how gender diversity can go hand in hand with advancements in technology can be gleaned from the renewable energy sector. According to the International Renewable Energy Agency (IRENA), the renewable energy sector employs 10 percent more women than the conventional energy sector (32 versus 22 percent). The reason for this is cited as the dynamic and multidisciplinary nature of the renewable energy field that appeals to women (IRENA 2019).

*Sources: Based on interviews conducted for the study; IRENA 2019.*

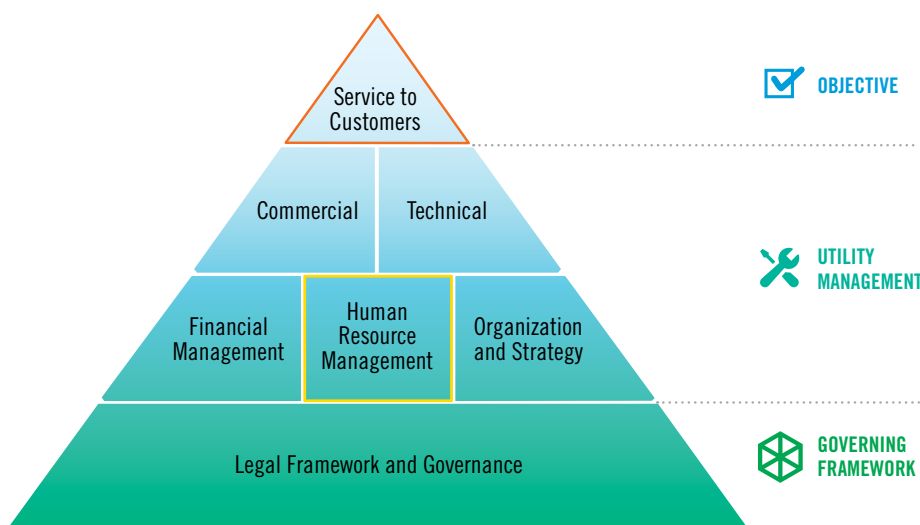
**However, the water and sanitation sector is a significant employer in many countries and is often overstaffed.**

Public water and sanitation utilities, which make up more than 90 percent of urban water and sanitation utilities (World Bank 2016), are often considered a favorable working environment, offering security, stability, and status. Data drawn from a survey conducted across 27 European countries revealed that public utilities are ranked among the most favorable jobs across 26 economic sectors (Turnbull 2013). In cases of overstaffing, hiring and retaining the most qualified employees and aligning their skills with evolving business needs will be crucial. Succession planning will be an important aspect to consider in countries in which the utility workforce is aging.

**Utilities must make the best use of the staff they have and ensure the staff they hire are aligned with evolving needs.**

Hiring the right person may prove especially important for public utilities with less flexible staffing practices and fewer avenues to deal with poor performance. Public utilities face additional challenges: constraints on staff compensation, selection of managers on political grounds, and weaker incentives for providing good service (Soppe, Janson, and Piantini 2018). It is in the best interests of both public and private companies to draw on all available talent. As described in box 1.3, as utilities modernize and adopt new technologies, they will need employees with new and diverse skill sets.

**FIGURE 1.5: SUCCESS PYRAMID FOR UTILITY TURNAROUND**



*Source: Soppe, Janson, and Piantini 2018.*

## PURPOSE, TARGET AUDIENCE, AND SCOPE OF THE REPORT

**The purpose of this report is to shed light on barriers to female employment in the water and sanitation sector and offer solutions for utilities to address them.** This issue has been underexplored in the water sector, which has focused so far on women as water users, less often considering women as water professionals. This report offers new evidence on women working in water utilities across the world. It contributes to the evidence base within the water sector while drawing on lessons learned from service providers in other sectors, primarily energy and transport, because they often face staffing challenges similar to those faced by the water sector.

**The target audience of this report is primarily water and sanitation service providers, but the findings of the report should also be of interest to line ministries, World Bank task teams, and other development practitioners working in the sector.** The report refers to national laws and regulatory frameworks but keeps the focus on what water and sanitation utilities can achieve and do to promote change and how sector institutions and development partners can help. The report highlights examples to illustrate possible entry points for increasing gender diversity in water and sanitation services.

**A balanced representation of men and women is one of many aspects of diversity.** Truly diverse organizations represent different backgrounds and identities, including age, race, sexual orientation, disability status, ethnic background, sexual orientation and gender identity, and religious affiliation. The scope of this report is limited to inclusion of women, but some barriers and promising approaches cited in the study can be applied to other excluded groups.

## METHODOLOGY

This report draws on range of sources. It includes primary data collected from water utilities, interviews and focus groups with staff, secondary data, and a desk review of existing literature:

- **World Bank Utility Survey.** Data were collected from 64 water and sanitation utilities in 28 economies through a 29-question survey to managers and HR departments that covered staffing breakdowns, training and mentoring opportunities, flexible work arrangements, policies and targets, and workplace environment and facilities,

among others. Data on employees were disaggregated by sex and included total number of workers, number of engineers, and number of managers.<sup>5</sup> Data on workers included all part-time and full-time employees working in water utilities, including engineers and managers. Not all utilities responded to all questions in the survey. Hence, the population size (N) varies depending on the number of water utilities that answered a specific question. Because of the limited, self-selected sample of service providers, the findings of the survey are not representative of all utilities. However, they represent the most comprehensive snapshot of gender issues in global water and sanitation utilities collected to date. More details on the survey are available in appendix c.

- **Focus group discussions and interviews.** Gender-segregated focus group discussions and in-depth interviews with staff in water utilities were conducted in Belarus, Arab Republic of Egypt, and Malawi. Focus group discussions were held with male and female employees from different departments and positions. Having a lending project supported by the World Bank was part of the selection criteria to ensure that analysis used for the study could be applied by project teams. Information was also collected through key informant interviews with representatives of utilities, academia, international organizations, and various roundtable discussions. Quotes from these in-depth interviews are presented throughout this report. A total of 41 participants were interviewed.
- **Secondary data.** The study also drew on secondary data from gender diversity assessments in utilities from Albania, Kosovo, and Romania, conducted by the Economic Dividends for Gender Equality (EDGE) Certification Foundation, with the support of the World Bank, the Global Water Security & Sanitation Partnership, and the Danube Water Program. The EDGE methodology provides an international benchmark for gender equality and enables companies to obtain a global certification (EDGE n.d.). Insights from a qualitative study on female representation in a utility in Bangladesh, conducted as part of a World Bank water and sanitation project, were also drawn on in this study. In addition, data from several sources, including IBNET and the United Nations Industrial Development Organization (UNIDO), based on MINSTAT, which includes information on female participation in the water sector and overall utilities,<sup>6</sup> were used for analysis in this report.
- **Literature review.** A literature review was conducted on female employment in water utilities, other utilities such as energy, and related fields, particularly science, technology, engineering, and mathematics (STEM) fields.

A large body of gray literature was also reviewed that examined the intersection between the employment of women and the water sector or other infrastructure industries. Sources included government documents, technical reports, working papers, and evaluations produced by a range of bodies, including academics, civil society, business, and industry.

## STRUCTURE OF THE REPORT

The following four chapters examine the barriers that women face working in water utilities, as well as the opportunities that are available to utilities to make advancements in gender diversity. The chapters are organized around the stages of the career cycle in the water sector (see figure 1.3), namely, attracting candidates to the sector (chapter 2), recruiting the best possible talent (chapter 3), ensuring employee retention (chapter 4), and providing opportunities for advancement to employees (chapter 5). Chapter 2 touches upon broader societal and national-level challenges that affect the participation of women in the water sector workforce. Although they cannot all be influenced directly at the level of a utility, they are important to understand. By contrast, chapters 3 to 5 examine barriers and opportunities that are largely within a utility's purview.

The career cycle framework allows a comprehensive approach to examining some barriers women may face in the water sector. Each chapter, representing one stage of the career cycle, lists numerous barriers that women

are likely to confront at that given stage and identifies ways of addressing those barriers. Although the barriers are systematized around the career cycle, principally for organizational purposes, they are not discrete entities. The barriers overlap and compound one another. Social norms, for instance, are not isolated barriers demarcating gender roles; rather, they influence all other barriers, such as the levels of STEM and technical and vocational education and training (TVET) graduates in a country, the hiring processes at the utility level, and the opportunities offered for training, promotion, and mentoring. Conversely, tackling any of these barriers can have a holistic effect. For instance, providing childcare facilities at the workplace may encourage more women to apply for jobs, which will create a generation of role models. This, in turn, can encourage more girls to study in STEM fields or take up TVET programs and ultimately shift female labor force participation.

Each of the chapters ends with a table that provides a summary of the main barriers that women face in the respective stage of the career cycle and lists promising approaches to address the given challenge. A list of examples of initiatives that have been put into practice and some promising approaches is also provided in the table, thereby demonstrating real-life experiences.

The last chapter of the report, chapter 6, provides an overview of the guiding principles that can motivate water utilities to enhance the gender diversity of their workforce. It lays out what can be done at the utility level and how national laws or policies can help the advancement of gender diversity.

---

### NOTES

<sup>1</sup> The World Bank recognizes the distinction between gender and sex: "The term gender refers to culturally based expectations of the roles and behaviors of males and females. The term distinguishes the socially constructed from the biologically determined aspects of being male and female. Unlike the biology of sex, gender roles and behaviors can change historically, sometimes relatively quickly, even if aspects of these roles originated in the biological differences between the sexes" (World Bank 2002, 2). References to gender included in this report are based on this definition, recognizing that whereas sex is based on biology, gender is socially constructed.

<sup>2</sup> This may be partly because of socialized differences between men and women: men may have a greater tendency toward bravado and desire to seem infallible, which can make them operate less safely, whereas women are socialized to be more receptive to coaching or instruction and more likely to react cautiously to dangerous or potentially hazardous situations.

<sup>3</sup> A recent study found that countries that have lower gender equality have more women studying in STEM fields, because women are more likely to choose well-paying and secure STEM careers in contexts that have higher economic risks (Stoet and Geary 2018).

<sup>4</sup> Countries included in the study are Bangladesh, Burkina Faso, Ghana, Lao People's Democratic Republic, Mali, Mozambique, Niger, Papua New Guinea, the Philippines, Senegal, South Africa, Sri Lanka, Tanzania, Timor-Leste, and Zambia.

<sup>5</sup> The World Bank Utility Survey defines managers as employees in leadership positions and decision-making roles, which can comprise upper-, middle-, and lower-level management. This may include chief executive officers, chief operation officers, chief technology officers, department heads, directors, chief supervisors, assistant managers, and section chiefs.

<sup>6</sup> This database comprises 10 sectors and 19 subsectors for the period 2005–15 that encompasses more than 120 countries. The unit of observation is the sector.



## FROM TRICKLE TO STREAM: Increasing the Supply of the Female Workforce in Water

**T**his chapter focuses on the first stage of the employee career cycle that affects the attraction of women to the water sector. Global data collected through the World Bank Utility Survey show that women are underrepresented at technical and leadership levels in water utilities, with only 18 percent of women on average making up the sector's workforce. An explanation for the low representation of women can be gleaned from findings from the literature review, as well as focus group discussions (FGDs) and interviews with water utility employees. These findings suggest that some key constraints pertain to broad societal and national-level challenges, such as gender norms and stereotypes, occupational segregation, the low share of women graduating from science, technology, engineering, and mathematics (STEM) fields, the dearth of female role models in the sector, and the nature of the work. Although not all of these broad-level challenges can be influenced directly at the level of a utility, they are important points to consider to better understand and contextualize the challenges that affect women's attraction to the water sector. Attracting more female candidates can bring benefits to a company, because a diverse workforce is associated, *inter alia*, with increased financial productivity, greater innovation, and improved customer satisfaction (see box 1.1). The chapter identifies some promising approaches that utilities can adopt to help increase the pipeline of young female talent to the water sector.

**“The utility is so male dominated, that within weeks of joining the utility, most women want to leave! The utility needs to hire more women so that a culture is created where everyone feels comfortable.”**

—Female water quality officer, Ghana

**Data collected for this report demonstrate that women are underrepresented in the water sector, particularly at technical and managerial levels.** Data drawn from the World Bank Utility Survey, with 64 utilities in 28 economies around the world, show that the percentage of female workers is considerably lower than that of men. As shown in figure 2.1, water utilities in the sample reported that on average, 18 percent of their workers are women. When looking specifically at engineers and managers, percentages of females employed are slightly higher, comprising 23 percent for both categories. The vertical lines in figure 2.1 show the range of values across all companies surveyed and show that there is significant heterogeneity in the sample responses. This is particularly so for engineers and managers. For instance, in utilities in Vanuatu and in China, women make up two-thirds of their engineers; similarly, in Serbia, 56 percent of all engineers are women. As for managers, in a utility in the Solomon Islands, 60 percent of managers are women; in Belarus, female managers are at 57 percent; and in Serbia, they are at 50 percent. On the other end of the spectrum are employers that have no female engineers or managers at all: 32 percent of the sampled utilities reported not having any female engineers, and 12 percent have no female managers. Data also show that bigger companies (with more than 200 employees) have a larger share of female employees overall and of female engineers in particular

compared with their smaller counterparts (30 versus 16 percent). By contrast, utility size did not seem to affect the share of female managers (figure 2.2).

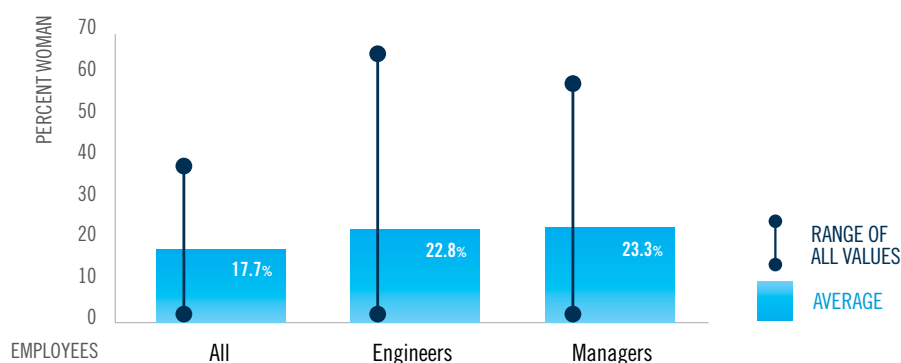
**Despite these low percentages, the proportion of female water professionals has grown steadily in the past few years.** Using data from IBNET for utilities that have at least four years of data between 2011 and 2016, a steady increase in the share of employees that are women was found (figure 2.3). This may be a positive sign that the sector is changing and women are becoming better represented. Nevertheless, significant work must be done before gender parity is achieved.

**Many factors contribute to this low participation of women in water employment.** One of them is that women are not attracted to the sector. Drawing from World Bank Utility Survey data, focus groups, key informant interviews, and existing literature, this chapter identifies key factors that explain the lack of supply of female talent in the water sector. As already indicated, most barriers identified here are broad societal challenges, some of which a utility cannot affect directly, but they are relevant to better understand the national-level context of women’s attraction to the sector. Nevertheless, there are some practical approaches a utility can adopt to attract more women to the sector.

**“When choosing where to work, most women choose desk jobs—although many of my friends say they would rather work in the field. I think this is related to perceptions that women can’t do field work. This is something that is so prevalent that it has become ingrained within ourselves.”**

—Female employee, Romania

**FIGURE 2.1: AVERAGE SHARE OF EMPLOYEES IN A WATER UTILITY THAT ARE WOMEN, 2018–19**



Source: World Bank Utility Survey 2018–19.

Note: Responses to the World Bank Utility Survey (N = 64 water and sanitation utilities in 28 economies). Bars show the average, and lines show the range of all values. Engineers are defined as licensed engineers working in the utility. Managers are employees in leadership positions and decision-making roles and can comprise upper-, middle-, and lower-level management.

# BARRIERS TO WOMEN'S ATTRACTION TO THE WATER SECTOR

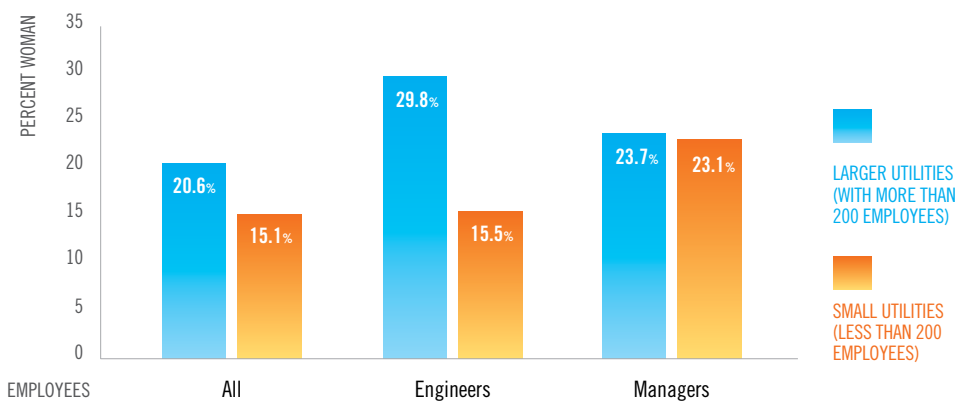
## Gender Norms, Attitudes, and Stereotypes

Because of entrenched social norms, water and sanitation utilities have been historically dominated by men and constructed as a predominantly masculine domain. Social norms give rise to stereotypes and assign roles to men and women that often determine their access to rights, opportunities, resources, and decision making. STEM fields are rife with gendered stereotypes. For instance, girls are seen as less capable in mathematics and science subjects (Corbett and Hill 2015), or work in STEM is considered more congruent with male behavior (van der Vleuten, Steinmetz, and van de Werfhorst 2019). Similarly, technical

and vocational education and training in areas such as plumbing or meter reading are traditionally considered male domains (UNESCO 2015).

**Women are likely to be deterred from entering water utilities precisely because such social norms prescribe that it is an area of work that is not suitable for them or that they are incapable of performing well.** The nature of work in infrastructure-heavy industries, such as engineering or plumbing in the water sector, is often thought to be dirty, dangerous, or too heavy for women. A gender assessment carried out under the World Bank's (2019f) Dushanbe Water Supply and Wastewater Project in Tajikistan, for instance, revealed that among the local community, there is a widespread perception that work in the water sector is more appropriate for men. Specifically, according to community members, water and sewer network maintenance requires physical

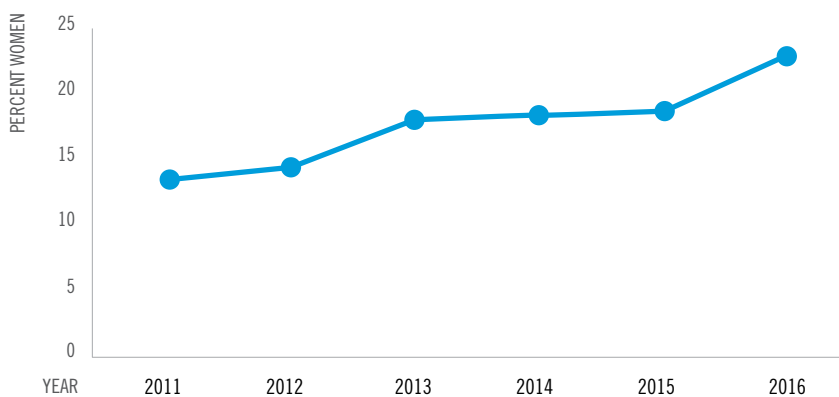
**FIGURE 2.2: AVERAGE SHARE OF EMPLOYEES IN A WATER UTILITY THAT ARE WOMEN, BY UTILITY SIZE, 2018–19**



Source: World Bank Utility Survey 2018–19.

Note: Responses to World Bank Utility Survey (N= 64 water and sanitation utilities in 28 economies). Engineers are defined as licensed engineers working in the utility. Managers are employees in leadership positions and decision-making roles and can comprise upper-, middle-, and lower-level management.

**FIGURE 2.3: TRENDS IN THE SHARE OF FEMALE WORKERS IN WATER UTILITIES**



Source: IBNET.

Note: Data includes 362 annual observations from utilities for the years 2011–2016. Utilities are included only if they have available data for at least four of the six years in the period. The ratio of women to total employees is calculated at the annual level for each utility and then averaged across utilities in the same year.



strength and is considered unsuitable for women because of their reproductive roles. Social norms ascribe certain jobs, particularly field-level technical positions, as being unattractive to women. However, such norms are not always upheld by women. A study on the renewable energy sector found that women often desire such positions but are not given the opportunity to take them up (IRENA 2019). The pervasiveness of such norms leads to the risk of a stereotype threat, whereby girls and women internalize and conform to the stereotype held about their social group and start performing accordingly (Shapiro and Williams 2012).

---

**“Nearly all women in the utility work in customer care, because women are thought to be better at soft skills such as handling people.”**

—Female water quality officer, Ghana

**“Women are weaker than men by nature. They cannot dig for a long time. When you partner with a woman, you work more.”**

—Male FGD participant, Malawi

**“Women are less interested to work in technical areas because stereotypically these have been dominated by men. They have internalized these stereotypes and as a result they are now concentrated in administrative roles instead.”**

—Female employee, Kosovo

---

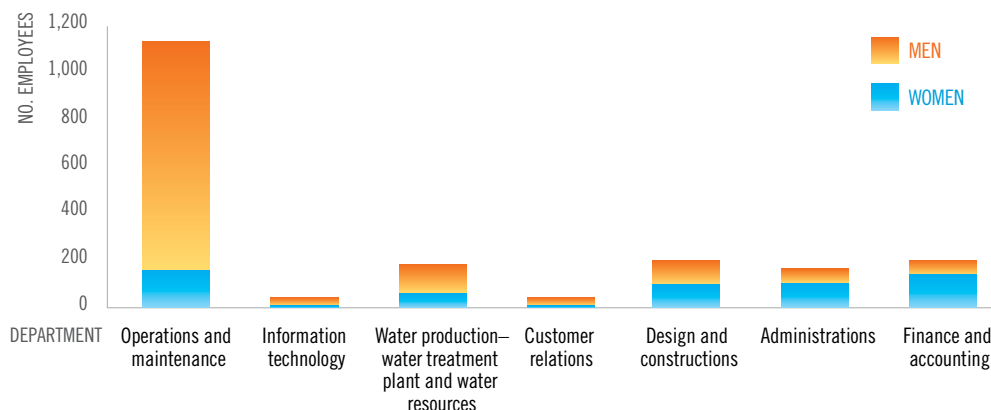
**Such widespread and internalized norms contribute to the “leaky” pipeline, whereby women continuously drop out of the sector because staying is not deemed attractive to them.** As will be examined in the following chapters, social norms not only affect women’s attraction to the water sector but also continue throughout their careers, affecting their recruitment, retention, and development.

## Occupational Segregation

**Gender-based occupational segregation is part of the equation of the underrepresentation of women in water utilities.** Although women’s overall participation in the labor force has increased around the world over the past decades, they are still 26 percent less likely to be employed than men, and those women that are employed tend to be in lower-paying and less productive occupations (ILO 2019b). Women and men tend to be employed in



**FIGURE 2.4: NUMBER OF EMPLOYEES BY DEPARTMENT IN A PUBLIC UTILITY COMPANY IN BELGRADE**



Source: Calculations based on information provided by the utility in January 2018.

**“In the field, almost everyone is male. There are women engineers in the company, but they are all in the office, and work in areas such as design.”**

—Male water utility manager, Romania

different occupations and at different levels of seniority. This occupational gender segregation is reflected in infrastructure-heavy industries, as was supported by data collected for this study. In FGDs, participants emphasized that women in utilities are employed predominantly in domains traditionally considered female, such as administration, customer relations, and finance and accounting, whereas men dominate positions in operations and maintenance that make up the largest job group. A breakdown of permanent employees by department in a utility in Serbia illustrates this occupational segregation. Data from the company show that in some departments, women are overrepresented; women make up 71 percent of staff in finance and accounting and 61 percent in administration. In technical positions, especially field-based positions, women are a minority. For instance, women represent only 14 percent of employees in operations and maintenance, which is the largest department in

**“Women like white collar jobs. They like to look smart and not work in dirty environments.”**

—Male FGD participant, Malawi

**“Women are better for companies that work directly with customers.”**

—Female utility employee, Albania

the company (figure 2.4). Similar trends can be found in other countries. The Brookings Institution reported that in the United States, less than 2 percent of plumbers, pipefitters, and steamfitters are women but that women account for approximately 95 percent of secretaries, 89 percent of billing clerks, 89 percent of accounting clerks, and 75 percent of human resource specialists (Kane and Tomer 2018). Such occupational segregation can similarly be observed in other infrastructure-heavy industries. For instance, although renewable energy employs significantly more women than the conventional energy sector, the representation of women even in this dynamic sector is concentrated in administrative positions and found less in technical positions (IRENA 2019).

### Low Levels of Female Graduates in Technical Fields

**An important determinant of the low representation of women in certain technical jobs is the low number of women attaining an education in STEM fields or in technical and vocational education and training (TVET) programs.** Although there has been significant progress in terms of girls’ access to primary, secondary, and tertiary education, this trend is not reflected in STEM field graduation rates (UNESCO 2017; World Bank 2015). At the global level, the share of women among total STEM tertiary graduates is 38 percent (ILO 2019a). Similarly, in TVET programs, women remain significantly underrepresented (UNESCO 2016). For example, women globally make up only 16 percent of trainees in plant and machine operation training (UNESCO 2019). In Afghanistan, for instance, women only make up 10 percent of TVET students

**“I wanted to go into engineering myself, but at the end I gave it up because I was afraid that I wouldn’t get the same respect or would get stuck because I was a woman.”**

—Female public relations specialist, Romania

(Hashimi, Olesen, and Solotaroff 2012). In many countries, girls are not encouraged to study in technical fields by their families or communities. Moreover, because of the prevailing stereotypes and social norms that technical fields are not suitable for girls, girls often self-select out of STEM or technical education. Gender inequality in access to STEM-related fields and TVET affects women’s participation in specific occupational areas, particularly those that tend to pay well.

## Role Models

**In addition to the above listed barriers, women often do not have sufficient role models to look up to.** In a field historically dominated by men, there is a dearth of female leaders that can act as role models. This is particularly pronounced in technical infrastructure occupations, such as in the transport and water sectors, which are filled by few women overall (Jalal 2014; Turnbull 2013). This is echoed by the results from surveys collected for this study, which showed that only 23 percent of managers in the sampled utilities are women. Many studies suggested that role models are particularly important for groups that face isolation or stigma in certain fields, as is typically the case for women working in infrastructure sectors (Castillo, Grazi, and Tacsir 2014; World Bank, forthcoming).

## PROMISING APPROACHES TO ADDRESS THE BARRIERS TO ATTRACTING WOMEN

**Although there is no silver bullet solution to motivate more girls and young women to pursue a career path in the water sector, various promising approaches and avenues address the issues outlined earlier to increase the supply of female professionals in the water sector.** Social norms do change, and initiatives to change social norms are possible (box 2.1). This section outlines key approaches from the global mapping of initiatives from water and related sectors. The initiatives presented here all have as their overarching objective erosion of the social

norms and stereotypes that women are not suited for jobs in the water sector. Through concrete steps, utilities have the ability to transform the image of their workplace to being inclusive. Approaches such as launching outreach programs to schools and colleges or offering scholarships to girls to pursue studies that are beneficial to a utility have the potential to attract women to the sector and thereby expand the talent pool. The table at the end of this chapter summarizes these approaches and provides a more comprehensive list of examples from the field.

## Outreach Programs to Schools and Colleges

**Young women cannot be what they cannot see, and exposure to better job aspirations and role models are key to changing their behavior for improved gender equality at the workplace.** Thus, exposing girls early to role models promotes positive beliefs regarding women’s abilities in math and science, invalidates stereotypes, helps widen their aspirations, and encourages them to explore career avenues that they may not have considered originally. As part of communications, campaigns, and outreach programs with schools and communities, utilities can showcase female workers in the sector in varying occupations, particularly ones that are male dominated.

**Utilities can develop outreach programs to secondary schools and communities to encourage girls to pursue careers in the sector.** For example, in 2014, the Water Authority of Fiji (WAF) launched a Water Champions outreach program targeting secondary school students, that has expanded to include women’s community groups and business associations (Jalal 2017; WAF 2017). The program is designed to raise awareness of the value of water and to encourage young women to pursue careers with WAF. The two-day program showed participants how water is delivered, from the source to the tap, and included field visits to water treatment plants and pumping stations. With the support of the Dushanbe Water Supply and Wastewater Project, Tajikistan’s Dushanbe Vodokanal water and sanitation utility will implement an outreach and recruitment program among targeted universities and technical schools to attract female candidates (2019–24; World Bank 2019f). It will organize information sessions, offer open days for undergraduate students, and use social media channels.

**“If utilities gave motivational speeches to universities, more female graduates may consider working in water utilities. For now, it seems to them like an unattractive job provider.”**

—Female water quality officer, Ghana

**“Society does not encourage girls to study engineering. Those girls who do study engineering and plumbing did so because they were motivated through career and motivational talks and [the] presence of some role models.”**

*—Female FGD participant, Malawi*

**“I have a sister who is a nurse; our family and community members say that my sister made a better choice than me, because engineering is not considered the right choice for women.”**

*—Female FGD participant, Malawi*



## BOX 2.1: CHANGES IN SOCIAL NORMS OFTEN TRANSLATE INTO MORE EMPLOYMENT OPPORTUNITIES FOR WOMEN

Changes in social norms can have direct influence on women's representation in water utilities. In recent years, for instance, the Philippines has observed broad societal changes in the acceptance of women taking up work outside of the home, to the point that if a woman holds a position with higher pay, the husband or other family members stay at home to take care of

domestic chores. This shift can be observed in Maynilad Water Services, where a large proportion of the 25.5 percent of women professionals are now young female engineers.

*Source: Interview with utility officer, Philippines, April, 3, 2019; World Bank Utility Survey 2018–19.*

**Adopt-a-School programs are another example of an outreach intervention that enables industries and companies to actively engage with an educational institution to increase their pool of young talent.** Such programs range from financial support to schools to improve their facilities, equipment, and teaching practices to support for school events, including career fairs, field days, and science competitions and fairs.

### Scholarships for Women in STEM

**One direct way to bridge the gender gap in STEM fields is to provide college scholarships or loans specifically for women pursuing studies in STEM subjects or TVET.** Scholarships can be provided by governments, as well as by industries, and they can help to ease financial constraints of talented female students from lower-income families. At the sector level, the South Africa Department of Water and Sanitation offers bursaries to study in water and

sanitations fields (ZA Bursaries 2019). Bursaries target disadvantaged students from poor and rural communities and can be used for both undergraduate and graduate studies in a diverse set of areas, such as environmental sciences, mechanical engineering, hydrology, water economics, and project management. To attract women to water sector institutions, Burkina Faso's Ministry of Water and Sanitation, which includes Burkina Faso's urban water utility Office National de l'Eau et de l'Assainissement (ONEA), plans to use social and digital media to encourage women to apply to technical and training programs sponsored by the World Bank's Burkina Faso Water Supply and Sanitation Program-for-Results (2018–23; World Bank 2018a). In the Lao People's Democratic Republic (Lao PDR), the Innovative Small Towns Water Supply and Sanitation Project (2009–19) supported by Asian Development Bank (ADB 2014) provides scholarships to female high school graduates to train as water engineers, technicians, and civil and environmental engineers (box 2.2).

## BOX 2.2: SCHOLARSHIP PROGRAM FOR WOMEN IN THE WATER SECTOR IN THE LAO PEOPLE'S DEMOCRATIC REPUBLIC (LAO PDR)

A limited supply of female talent may be one contributing factor for the low numbers of women in technical and managerial positions in the water sector. This was the case in Lao PDR's Department of Water Supply: only 11.7 percent of its staff were women, and out of these, most were employed in administrative or financial positions. The Department of Water Supply faced challenges in finding women to fill technical and managerial positions. To address this, the ADB developed a grant project with the objective of strengthening the talent pipeline of future women engineers and leaders in the water sector (ADB 2014). The grant funded a range of comprehensive activities that supported women (1) throughout all stages of STEM employment, (2) from identifying and recruiting high school

graduates at the province level, (3) to offering them a four-year scholarship to pursue an undergraduate degree in a related engineering field, (4) to providing them with a two-month internship programs in water utilities and mentorship, and (5) to offering them professional development workshops once hired. The project emphasized that targets for women's employment must be complemented with efforts to increase the supply of STEM-qualified women. The pipeline of women engineers was developed through sustained monetary and HR commitment, such as regular counseling and mentoring.

*Source: ADB 2014; World Bank, forthcoming.*

## AT A GLANCE: ATTRACTING WOMEN TO THE WATER SECTOR

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>Outreach programs to schools and colleges</b>		
<p>Stereotype that work in water utilities is not suited to women</p> <p>Lack of role models in the water sector</p> <p>Lack of knowledge about opportunities in the water sector</p>	<p>Career talks, role models, and other outreach campaigns</p> <p>Female representatives to present the work of the organization to schools, colleges, and the community</p> <p>Bring Your Daughter to Work Day</p>	<p>WAF launched a <a href="#">Water Champions outreach program</a> in secondary schools to encourage young women to pursue careers with WAF.</p> <p>An <a href="#">ADB energy project</a> in Bhutan has female electrical technicians in villages who challenge social and gender stereotypes.</p> <p><a href="#">EVN Macedonia</a> and <a href="#">EKEDP Nigeria</a> implemented a Bring Your Daughter to Work Day to inspire girls about their future career prospects.</p>
<b>Scholarships in technical fields</b>		
<p>Low level of female graduates in technical fields</p> <p>Stereotype that girls are incapable in technical studies</p> <p>No exposure for girls and women to technical fields</p>	<p>Scholarships for women in STEM studies</p> <p>International exchange programs</p>	<p>The <a href="#">South Africa Department of Water and Sanitation</a> offers bursaries to universities and technical schools to study in water and sanitation fields.</p> <p>The <a href="#">Lao PDR Innovative Small Towns Water Supply and Sanitation Project</a> provides scholarships to female high school graduates to train as water engineers and technicians.</p> <p>A <a href="#">World Bank program</a> in Tanzania aims to encourage the enrollment of female students at the country's Water Institute by allocating a larger percentage of sponsored student loans to women and girls.</p> <p>Burkina Faso's Ministry of Water and Sanitation plans to use social and digital media to encourage women to apply to technical and training programs sponsored by the World Bank's <a href="#">Water Supply and Sanitation Program-for-Results</a>.</p> <p>The U.S. <a href="#">Society of Women Engineers</a> provides scholarships while leveraging private sector partnerships.</p>

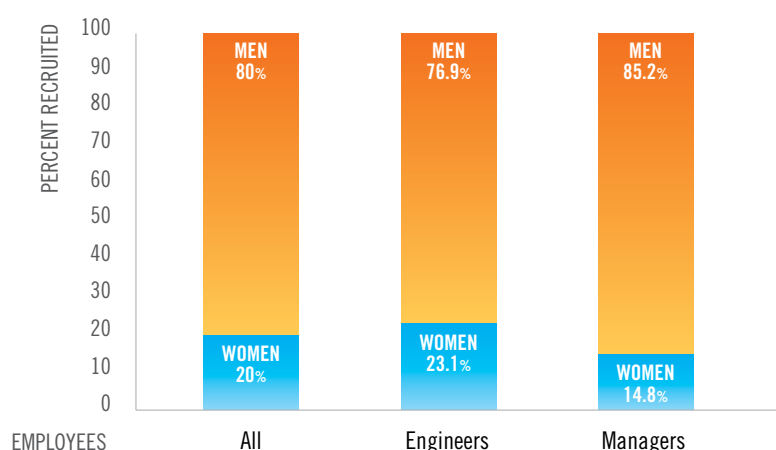


## 3

## TAPPING INTO FEMALE TALENT: Recruiting Women into the Water Sector

**T**his chapter focuses on recruitment, the second stage of the career cycle. Global data collected through the 2018–19 World Bank Survey show that over a span of 12 months, women were hired at significantly lower rates than men. Findings from the literature review suggest that some challenges women face in being recruited to water utilities lie in biased hiring processes, including discriminatory language in job postings and implicit biases that affect members of the hiring panel. Small investments into overcoming biases in the hiring process can expand the talent pool to the most skilled candidates and thereby produce economic benefits for a water utility. Moreover, a fair and nondiscriminatory hiring process reduces the business costs incurred by a company when hiring the wrong person for the job. The chapter provides a menu of promising approaches that can help to increase the pipeline of young female talent to the water sector.

**FIGURE 3.1: RECRUITMENT OF MEN AND WOMEN IN WATER UTILITIES IN THE PAST 12 MONTHS, 2018**



Source: Responses to World Bank Utility Survey 2018–19.

Note: The graph shows the average gender breakdown of newly recruited employees, by position type, across surveyed utilities.

**Findings from the World Bank Utility Survey illustrate that men are recruited at higher rates than women.**

These numbers are worrying, because they show that the lack of women working in the sector is not simply the result of past inequalities in the hiring process but that these inequalities are actively perpetuated. Over the last 12 months, water companies have hired men over women at a 4-to-1 rate. This pattern is similar for engineers and managers, among whom women made up only 23 and 15 percent of hires, respectively, within the past year (figure 3.1). With the exception of one company in Belarus, which hired 11 men and 16 women in the past year, all other companies surveyed in this study recruited more men than women. This chapter discusses some factors that contribute to the barriers that women face during recruitment. Some of these barriers are formal, put in place by hiring policies. Other barriers run deeper and may be the product of long-held cultural beliefs. These barriers tend to be more challenging to overcome. Nevertheless, solutions presented at the end of this chapter suggest a way forward for creating a more inclusive recruitment environment.

**“As the only woman in a hiring panel of six members, I observed how my male colleagues systematically favored male candidates, even when the female candidates had strong qualifications. When I asked my colleagues why they were not choosing the women, they said that it was too risky for the company, because women go off to give birth and have to take care of the children.”**

—Female water quality officer, Ghana

## BARRIERS TO WOMEN'S RECRUITMENT TO THE WATER SECTOR

### School-to-Work Transition

**Efforts to close gender gaps in education and increase the enrollment of women and girls in science, technology, engineering, and mathematics (STEM) subjects have not translated into higher labor force participation of women in STEM fields.**

Evidence shows that there are high attrition levels of the female STEM pipeline. A study done in the United States, for instance, found that 20 percent of engineering graduates are women but that women only make up 11 percent of the engineering workforce (Fouad and Singh 2011). Similarly, in Canada, less than 50 percent of women graduates with a STEM degree go on to work in STEM-intensive occupations (World Bank, forthcoming). In Latin America, only a small proportion of women trained in hydrology end up working in the water sector (Nieves Rico 1998). Data collected for this study specifically in water and sanitation utilities show similar trends. In West Bank and Gaza, for instance, 45 percent of all STEM graduates are women, but female participation in the 11 water service providers surveyed is only 6 percent on average. These gaps across the world between the number of women who graduate from STEM-related fields and those who work in such fields suggest that women confront bottlenecks in the transition from school to employment.<sup>7</sup>

**“I’m faced with assumptions that I can’t do something, because I’m a woman, and I’m young. If I’m able to do the job, that’s all that should matter.”**

—Shabana Abbas, President, Water Youth Network



**“Another barrier women face is low confidence. Because of that, they do not apply for positions. They don’t think they are good enough. Men are more confident than women.”**

—Female engineer, Tanzania

**“Many women study in STEM courses here but they are obstructed from working in the field, largely because of the many permanent and temporary checkpoints that prevent them from free movement.”**

—Female utility official, West Bank and Gaza

## Female Graduates Not Targeted as Candidates

**Women may not be entering the workforce in water utilities because they are not targeted as candidates and are left out of recruitment processes.** Women are typically not targeted in job placement programs or other school-to-work transitions. This can make women unaware of available positions or feel discouraged to apply. Moreover, evidence shows that the language of job postings can affect who applies and is likely a contributing factor to the gender imbalance. Job postings in male-dominated industries, such as STEM-related fields, often contain gender-biased terminology that emphasizes masculine strengths and skill sets (Gaucher, Friesen, and Kay 2011).<sup>8</sup> Discrimination against female candidates is not always only in the purview of the hiring body; sometimes, such discriminatory practices are codified by law. Some countries have legal restrictions that prohibit women from being hired by the water sector (box 3.1).

## Gender Biases in the Hiring Process

**Gender biases in the hiring process exist in most fields, but evidence suggests that they are particularly stark in STEM-related fields, with male applicants favored over female candidates across the board.** Often such biases

are implicit, with hiring teams unconscious of their own biases and presuming they are acting in gender-neutral ways. Yet as study after study shows, gender neutrality is rare, and implicit biases permeate most hiring decisions (Corbett and Hill 2015). Social-psychological experiments have shown that for jobs requiring mathematics, male candidates are twice as likely to be hired than female candidates (Williams et al. 2016) and that competent women are less likely to be hired than less competent men (Corbett and Hill 2015). A biased hiring panel is also likely to pose prejudiced interview questions, such as asking about the physical strength of a candidate even when the job sought does not require such a capacity.

**Findings from Economic Dividends for Gender Equality (EDGE) gender assessments in water utilities in Albania, Kosovo, and Romania show that women perceive the hiring process to be biased.** In an employee survey, when asked whether they believe that women and men are given the same opportunities to be hired by the company, women responded more negatively than men. On average, 20 percent of the female employees from the utilities responded that they disagree or strongly disagree with the view, in contrast to 14 percent of male employees (World Bank 2019g).

### BOX 3.1: LEGAL BARRIERS TO HIRING WOMEN IN THE WATER SECTOR

The 2018 Women, Business and the Law (WBL)<sup>9</sup> data show that women continue to face many discriminatory laws around the world that obstruct their opportunities to work. Of the 189 economies included in the WBL 2018 data set, 104 economies have laws that prevent women from working in specific jobs. Industry restrictions are particularly common. Sixty-five economies, for instance, restrict women from working in mining. Women also face job restrictions in industries such as manufacturing (47 economies), construction (37 economies), energy (29 economies), agriculture (27 economies), and transportation (21 economies), and 26 economies have restrictions on women working in the water sector. Out of these,

more than half explicitly prohibit women from working in sewers, and 20 percent do not allow women to work as plumbers. In one-third of these economies, laws ban women from working in water-related works at night, which encompass various jobs, such as construction and maintenance of canals, viaducts, wells, waterways, and drains. Other barriers to women’s participation in water-related employment include specific laws that prevent them from working in degrading jobs or those requiring regularly soaking the body in dirty and fetid water or from engaging in cold water operations during their menstrual period.

Source: World Bank 2018d; WBL Dataset 2018.

### **Discriminatory recruitment practices cut across several identity markers, including age, disability status, and race.**

In the United States, for instance, a comprehensive study of the water sector showed some interesting trends. Water workers tend to be older and lack gender and racial diversity (Kane and Tomer 2018). As of 2016, nearly 85 percent of those employed in this subsector were male and two-thirds were white, pointing to a need for a more diverse workforce. Some water occupations attract people significantly older than the national median (42 years old), including water treatment operators (46 years old). Meanwhile, women make up only a fraction of employment in some of the largest water occupations, including plumbers (1 percent; Kane and Tomer 2018).

### **An inclusive recruitment process has economic benefits.**

Investing in hiring processes that reach out to female candidates—such as launching outreach programs to universities and colleges, offering school-to-work transition training, or ensuring a presence at career fairs—will incur an organization an initial cost, but in the long run, the benefits will outweigh the costs. An inclusive recruitment process is more likely to target a wider pool of candidates, which increases the likelihood of attaining the best possible talent quickly, which in turn improves the performance and productivity of the organization.

## **PROMISING APPROACHES TO ADDRESS THE BARRIERS TO RECRUITING WOMEN**

**To overcome the recruitment barriers women may face, companies can take simple, actionable measures in its hiring process.** This section outlines key approaches, tried and tested in water utilities and related industries. The table at the end of this chapter summarizes these approaches and provides a more comprehensive list of examples from the field.

### **School-to-work Transition**

**Utilities can attract young female talent by offering job placement programs such as internships and apprenticeships and on-the-job skills training.** For instance, with the support of the World Bank's Dushanbe Water Supply and Wastewater Project (2019–24), Tajikistan's Dushanbe Vodokanal water and sanitation utility will establish quotas for female interns in its internship program. Gender-disaggregated data on interns and interns that turn into employees will be collected (World Bank 2019f). Another example from the energy sector

**“It could be helpful to ensure women are aware that there is a potential to apply to these positions—that positions are open, and that they are just as suited to apply.”**

—Female employee, Kosovo

is a 6-month internship program of the U.S. Agency for International Development (USAID) to encourage youth involvement in the energy sector—particularly female, low-income, and rural district candidates. Seventeen organizations participated, including thermal power plants, grid stations, distribution companies, water and power departments, and consultancy firms (USAID n.d.a).

### **Modifications to the Hiring Process**

**Interventions tested in other sectors demonstrate that an inclusive hiring process can lead to a more diverse set of candidates applying for a job.** Such inclusive practices can involve adding a commitment to diversity in job advertisements, ensuring a gender-balanced hiring committee, or offering incentives to employers to hire more women. For example, as part of USAID's Engendering Water Utilities program, EVN Macedonia adopted a competency-based hiring approach to reduce gender biases in hiring (USAID n.d.c). The organization reviewed hiring tests to ensure that it tested for skills relevant to the advertised positions. As a result, women are scoring higher on these exams and, consequentially, more women are being hired.

**Water companies can limit implicit bias by modifying their hiring process.** A first step is to evaluate job advertisements and descriptions for bias. For example, the World Bank uses the application Textio to review gender-coded language from job descriptions. The software provides a field for employers to enter their job descriptions, which receive a score, along with recommendations for improvement. The tool uses a simple color scale to highlight words (like *ambitious* and *driven*) that will appeal more to men and words (like *nurturing* and *collaborative*) that will speak more to women, so job descriptions can be reworked to be more balanced. Tweaking a short recruitment message for a technical job posted on LinkedIn increased responses from female applicants by 25 percent and led to an 11 percent increase in more experienced candidates. Revising the language in job postings can therefore not only attract more female candidates but also attract more qualified candidates, both men and women. Another example of an initiative to overcome gender biases in the recruitment process is the World Bank-supported Egypt Sustainable Rural



Sanitation Services Program-for-Results (2015–23). This project encourages water utilities in select regions to revise recruitment advertisements to incorporate gender-neutral language (World Bank 2018b).

**Another step toward limiting implicit bias in the hiring process is to require a set percentage of short-listed female candidates.** Melbourne Water utility has a Gender Equity Shortlist Policy that requires all hiring managers to ensure they have a gender-equitable shortlist of suitable candidates before commencing the interview process (Melbourne Water Corp. 2017). Gender bias in hiring can also be removed by employing a gender-diverse hiring panel. This has the dual benefit of allowing prospective women candidates to interact with women who are already employed and can testify to a company's commitment to diversity, thus increasing their interest in working there. Some water utilities have established comprehensive measures to ensure diversity in their hiring practices. For example, Unitywater in Queensland, Australia, has a Diversity of Hire initiative that includes several measures to ensure diversity, such as job advertisements that reflect diverse demographics, diverse interview panels, and methods of tracking diversity of candidates through each stage of the recruitment process (WSAA & Diversity Partners 2017).

## Incentives and Targets

### **Water utilities can include specific gender diversity targets to address gender imbalances in their workforce.**

In Georgia, the Asian Development Bank–supported Urban Services Improvement Investment Program sets a target of 30 percent female representation in overall employment and key management staff of the water utility and at least 30 percent female staff in town customer service care centers (ADB n.d.). Hiring incentives can also work in attracting more women. In Australia, the Victorian Water Board offers Male Champions of Change awards to male leaders who advance women's representation in the workplace (Department of Environment, Land, Water and Planning 2015). In the United Kingdom, the Freight Transport Association (2018) offers Industry Champion Awards to men and women who hire and retain women in the sector. At the national level, Gender Equality Seal programs for public and private organizations can provide incentive for companies to institute measures to increase gender diversity in their workforce. Brazil's Pro-Gender Equality Seal recognizes organizations that strive to promote an inclusive culture. In 2015, for example, the seal was granted to Itaipu Binacional (n.d.), a private renewable energy company that doubled the number of women in management positions over a decade.

## AT A GLANCE: RECRUITING WOMEN TO WATER UTILITIES

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>School-to-work transition</b>		
<p>Occupational segregation</p> <p>Lack of information about water utility internships, entry-level jobs, etc.</p> <p>Lack of school-to-work pathways and transitions</p>	<p>Job training and placement programs</p> <p>Women engineers recruited directly from universities</p> <p>School-to-work transition training</p> <p>Presence at career fairs</p> <p>Internships that have balanced participation from men and women</p> <p>Vacation work programs for men and women</p> <p>Apprenticeships for men and women</p>	<p><a href="#">Unitywater</a> in Australia offers annual Vacation Work Programs, an Apprentice Program, and a Work Experience Program for placements in nontraditional trades.</p> <p>The <a href="#">Adolescent Girls Initiative</a> supports girls transitioning from school to employment by providing them with tailored, market-oriented training.</p> <p>Tajikistan's <a href="#">Dushanbe Vodokanal</a> water and sanitation utility will establish quotas for female interns and collect gender-disaggregated data on interns and interns that turn into employees.</p>
<b>Modifications to the hiring process</b>		
<p>Gender-biased hiring practices</p>	<p>Inclusive job advertisements</p> <p>Language analysis of job descriptions</p> <p>Gender-blind recruitment</p> <p>Removal of personally identifiable information from resumes</p> <p>Structured standardized interviews</p> <p>Gender-balanced hiring committee</p> <p>Hiring committee training on implicit gender bias</p>	<p>Egypt's <a href="#">Sustainable Rural Sanitation Services Program-for-Results</a> encouraged utilities to revise job advertisements and incorporate gender-neutral language.</p> <p>The World Bank has used <a href="#">Textio</a> software to revise job recruitment posts.</p> <p><a href="#">EVN Macedonia</a> adopted a competency-based hiring approach to reduce gender biases in hiring.</p> <p>Melbourne Water's <a href="#">Gender Equity Shortlist Policy</a> requires all hiring managers to ensure they have a gender-equitable shortlist of suitable candidates before commencing the interview process.</p> <p><a href="#">Icon Water, Australia</a>, practices blind recruitment actions to expand diversity.</p> <p>Unitywater in Australia's <a href="#">Diversity of Hire initiative</a> includes advertisement content reflecting different groups and diverse interview panels.</p> <p>The <a href="#">Lilongwe Water Board</a> in Malawi added an explicit call for female candidates in its job posting for engineers.</p> <p><a href="#">Melbourne Water, Australia</a>, provides education on unconscious bias to all managers.</p> <p>The <a href="#">Brasov Water Company</a> plans to implement a systematic interview system to ensure more equitable hiring processes.</p>

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>Incentives and targets</b>		
<p>No incentive for management to hire women</p>	<p>Targets to expand gender diversity</p> <p>Action plan on meeting gender targets</p> <p>Awards to hire women</p> <p>Awards that recognize male or female champions who advance women employed in the sector</p> <p>Measures to track diversity</p>	<p><a href="#">Unitywater</a> in Queensland, Australia, tracks candidate diversity throughout recruitment process.</p> <p>The <a href="#">Georgia Urban Services Improvement Investment Program</a> sets a target of 30 percent female representation in overall employment and key management staff of the water utility.</p> <p>Under its new business plan, the <a href="#">Tirana Water Utility</a> in Albania has introduced targets for male and female representation.</p> <p>UK's Freight Transport Association offers <a href="#">Industry Champion Awards</a> to men and women who hire and retain women in the sector.</p> <p><a href="#">Male Champions of Change awards</a> are offered by the Victorian Water Board in Australia to male leaders who advance women's representation in the workplace.</p> <p>Brazil's <a href="#">Pro-Gender Equality Seal</a> recognizes organizations that strive to promote gender diversity.</p>

## NOTES

<sup>7</sup> Such bottlenecks occur for multiple reasons, but one important reason stems from engineering workplace culture being perceived as inflexible and unsupportive of women (Fouad and Singh 2011). A related reason is that women fear they will not fit into a masculine domain (Seron et al. 2015). Psychologically, this often leads women to lack confidence that they will succeed in the sector. This, in turn, contributes to their decision to not seek work in STEM fields (Silbey 2016).

<sup>8</sup> A study by the American Psychological Association showed that job advertisements that use words associated with typical stereotypes held around masculinity and femininity perpetuate gender inequality (Gaucher, Friesen, and Kay 2011).

<sup>9</sup> WBL, a World Bank initiative, collects data on the laws and regulations that limit women's economic participation and opportunities around the world (World Bank 2018d). It shows that legal restrictions constrain a woman's ability to make economic decisions and to participate in the economy, which not only limits opportunities for women but can also have far-reaching consequences.



## 4

## FIXING THE LEAKS: Retaining Female Talent in the Water Sector

**T**his chapter focuses on the third stage of the employee cycle in the water sector that refers to the ability of utilities to retain female recruits. Survey data collected as part of this study show that female employees leave water companies at a higher rate than men. Findings from surveys, focus groups, and in-depth interviews, and as reinforced by literature, point to a range of reasons why utilities may be unable to retain their female employees in equal rates as their male colleagues, such as insufficient flexibility in arrangements that enable women to reconcile work and caregiving roles, the feeling of isolation in a male-dominated environment, concerns over working conditions related to the absence of basic amenities (separate toilets, changing rooms, and sanitary facilities), and sexual harassment or other forms of harassment. Retaining qualified employees is beneficial because it reduces its turnover costs and, moreover, ensures that its workforce remains engaged and skilled. The chapter provides a menu of promising approaches that can help retain female employees in water utilities.

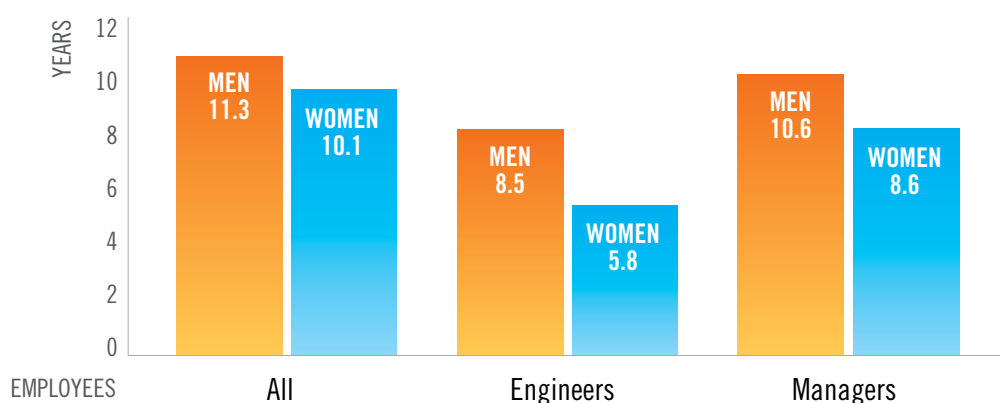
### Water utilities face employee retention gender gaps.

On the one hand, data collected for this study reveal that across the board, men and women have similar average tenures working for the same company—men have an average tenure of 11.3 years, women 10.1 years (figure 4.1). However, the picture changes when looking at more technical positions like engineers and managers. Women engineers have been with their current company for a considerably shorter period than men—5.8 years versus 8.5 years on average. A similar trend can be observed among managers: Women managers have been in their position for 8.6 years versus 10.6 years for men. Data for 2018 also show a higher share of exits by female employees from water utilities across all types of positions (figure 4.2).

### A review of the literature of employee retentions in science, technology, engineering, and mathematics

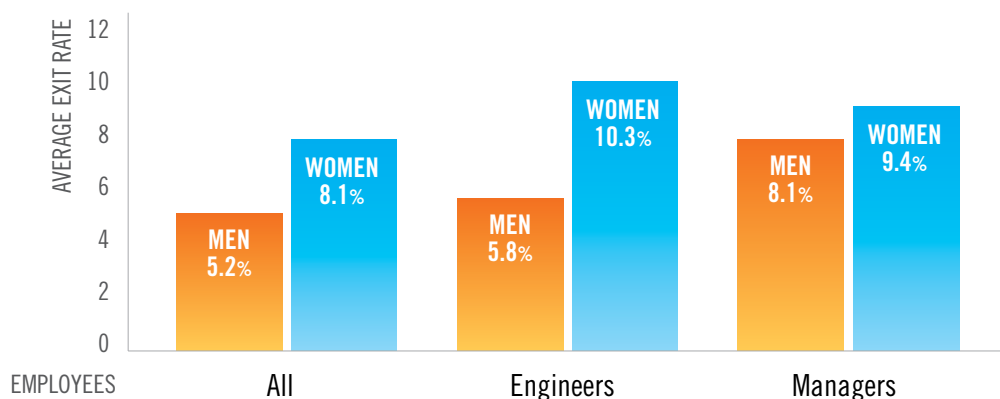
**(STEM) fields shows similar trends.** Evidence shows that women leave STEM disciplines in disproportionate rates to men throughout their career cycles (UNESCO 2017). A study comparing the retention of women in STEM fields with women in non-STEM fields in the United States, for instance, found that 50 percent of women working in STEM leave their job within 12 years, in contrast to only 20 percent of women who leave other professional fields (Glass et al. 2013). Moreover, data indicate that a large proportion of women who enter the workforce in STEM-related fields quit within the first year: In China, the rate of women leaving within one year is 30 percent; in the United States, it is 32 percent; in India and Brazil, it is 20 and 22 percent, respectively (World Bank, forthcoming). Such leaking of the pipeline is costly because employee turnover has significant financial, time, and performance costs on a business.

**FIGURE 4.1: AVERAGE NUMBER OF YEARS WORKED BY MEN AND WOMEN IN WATER UTILITIES, 2018**



Source: Responses to World Bank Utility Survey 2018–19 (N = 40 water utilities).

**FIGURE 4.2: MALE AND FEMALE WORKERS' EXIT RATES IN WATER UTILITIES IN THE PAST 12 MONTHS, 2018**



Source: Responses to World Bank Utility Survey 2018–19 (N = 49 water utilities).

Note: Values for figure 4.2 are calculated by taking the number of exits in the past year and dividing it by the total number of workers for men and women separately. Values are then averaged across utilities.



“Women still feel they are the ones who, when they get married and have children, have to take care of children, even if they bring in more income. Our culture is very family-oriented, and it includes our extended family. Women carry the load.”

—Female manager, Samoa

“Most women do not like to work during odd hours because of some family commitments such as nursing babies.”

—Female focus group discussion (FGD) participant, Malawi

## BARRIERS TO WOMEN’S RETENTION IN THE WATER SECTOR

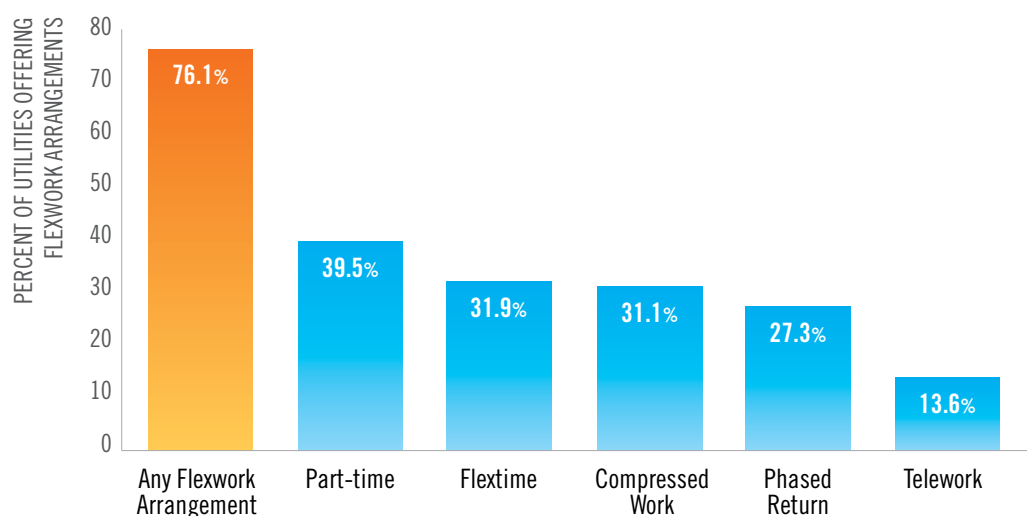
The retention gender gap among employees in water companies is due to a plethora of barriers that often await women who do make it into the workforce. One of the principal reasons widely identified for the high attrition rate among female employees, as is the case in many other sectors, is the high burden of unpaid care they provide, for which most workplace institutions do not accommodate (ILO 2019b). The disproportionate responsibility women have in care work often translates to them facing challenges in managing their work–life balance. Inadequate family-friendly policies to support employees in their roles at work, at home, or in the community affects all employees, but it is likely to be felt more acutely by women, who bear more of the domestic and caregiving responsibilities. Another factor related to women’s low retention rates is a work environment and work culture that do not sufficiently address women’s needs and priorities. These barriers will be explored in closer detail.

### Lack of Work–Life Balance

Although women working in most sectors are burdened by their domestic and caregiving roles, evidence suggests that this is particularly acute for women working in STEM-related careers. According to multiple studies, one of the main reasons why women working in these fields, particularly engineers, leave their jobs is the inflexibility in working hours or the “culture of overwork” (Corbett and Hill 2015; Fouad and Singh 2011). This often makes it difficult for women to balance their work and family obligations (Fouad et al. 2017).

The very nature and structure of work in a utility, often makes working there incompatible with family commitments. Work in a water utility is often described as requiring a 24/7 commitment because employees need to ensure the reliability of water supply. Therefore, employees, particularly engineers and technical operators, are often expected to work extended hours, night shifts, or weekends. This expectation is particularly arduous for women who have children or other family members to care for. In some cases, such as in Malawi as reported

FIGURE 4.3: FLEXIBLE WORK ARRANGEMENTS OFFERED BY WATER UTILITIES<sup>1</sup>



Source: Responses to World Bank Utility Survey 2018–19.

Note: Figure represents the share of utilities offering each type of flexible work arrangement, with the first column (orange) being the share of utilities offering any of the flexible work arrangements listed to the right (blue).

by focus group participants, husbands do not permit their wives to work at night, particularly if they are in the company of male colleagues. Similar findings are found in other infrastructure-heavy industries, including renewable energies. A report by International Renewable Energy Agency (IRENA) found that field-level positions that require frequent travel and relocation are particularly challenging for women who have childcaring responsibilities (2019).

**Related to this, most companies offer some sort of flexible working arrangement to their employees, though certain options are very limited.** More than three-quarters of all companies offer at least one of five different types of flexible working arrangements listed in the World Bank Utility Survey, 40 percent of the sample offer part-time work schedule, and 32 percent of companies surveyed allow their employees flextime (figure 4.3). Lack of flexible work options can have a disproportionately negative impact on women because they are the ones typically taking care of the children and the elderly.

**Moreover, women's disproportionate responsibility in domestic and caregiving roles affects how they are viewed by colleagues and managers.** Interviews and focus group discussions with women working in water utilities revealed that women feel disadvantaged compared with their male colleagues due to their familial responsibilities. If a woman is unable to conform to the expected working hours, it can reinforce beliefs and stereotypes that they are not suited to work in a water company and thus limit their career growth. On the other hand, the notion that women's main responsibility is to take care of the household still prevails among many, and women who work are often subject to discriminatory behaviors. Female participants from focus group discussions in Egypt mentioned that they were subjected to disparaging comments from their male colleagues because they were working instead of taking care of responsibilities at home. These biases can often limit women's career progression or may even lead them to opt out of the profession entirely. This is in line with International Labour Organization (ILO) data, which find that mothers of children younger than 6 years have the lowest participation rates in managerial and leadership positions (ILO 2019b).

## Gender Wage Gaps

**In addition to limiting their career progression, women's domestic and caregiving tasks may have direct impacts on their wages.** A large body of evidence suggests that women with children often earn significantly less than childless women (Harvard Business Review 2013; ILO 2019b; UN Women 2015). Women pay a "motherhood penalty" for a host of reasons, including taking paid or unpaid maternity leave, opting to work fewer hours, and stigmas from managers and colleagues.

**ILO estimates that women are paid 20 percent less than men globally (ILO 2019b).** Identifying unexplained pay gaps is a complex issue. There are many factors which determine wages, including age, experience, education, etc. Therefore, determining the importance of gender in this relationship requires careful analysis at the company level. Data from the International Benchmarking Network for Water and Sanitation Utilities (IBNET), from the United Nations Industrial Development Organization (UNIDO), and collected through the World Bank Utility Survey show mixed results with respect to gender wage gaps. In the IBNET data, of the 148 companies reporting wage data, the average man earns US\$6,100 while the average woman earns US\$5,220 per year. These findings are corroborated by analysis of male gender wage premiums in utilities, based on data from UNIDO (box 4.1). Nevertheless, these data sets do not distinguish by job type, so it cannot be discerned whether this wage gap is due to men getting paid higher salaries for the same job or men being more likely to be employed in higher-paying positions. For this, we turn to the findings from the World Bank Utility Survey<sup>10</sup> (figure 4.4). When looking at engineers and managers, women engineers, on average, earn 3 percent more than male engineers, whereas women managers earn 8 percent less than men. Nevertheless, it is important to note that many factors determine wages, including experience, performance, and responsibilities, for which this broad data does not account. Thus, though the data is indicative, one should be careful about drawing conclusions about pay equity from it.

---

**"Working so hard must affect your ability to take care of your household responsibilities."**

—Female FGD participant quotes a male coworker, Egypt

**"Although salaries were actually equal, higher bonuses were given to men; also they were given bonuses more frequently. We could see this by the number of envelopes men received compared to women."**

—Former female utility manager, Ecuador

“Men do not shoulder the childcare responsibilities, and so they are able to progress in their careers faster than women.”

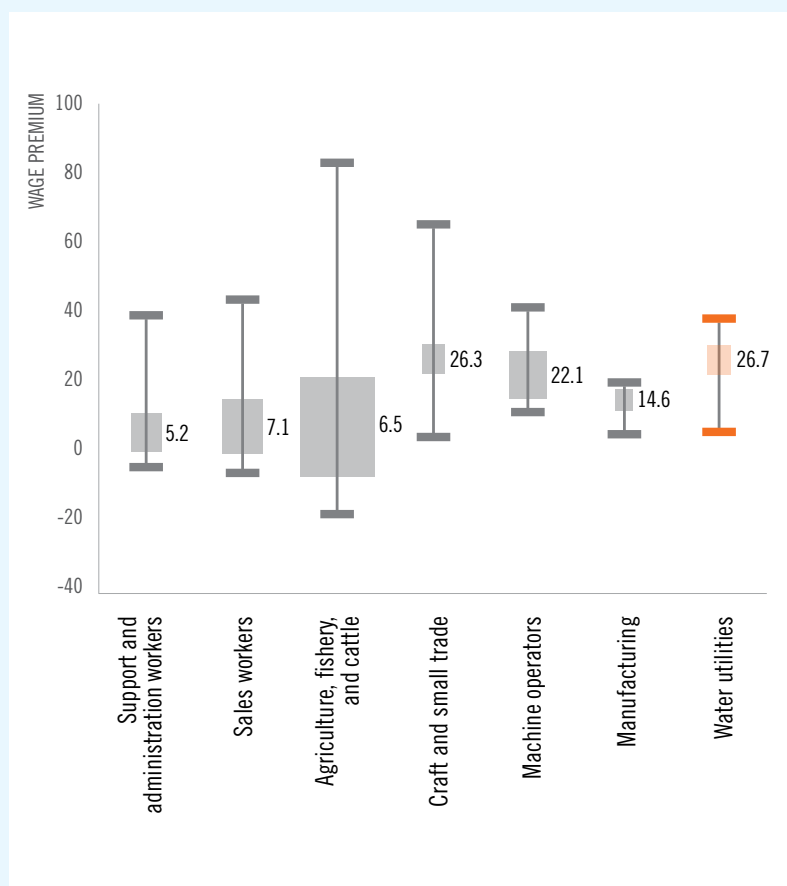
—Female assistant director, Guadeloupe

“Salary is equal—but women are put in lower-paid jobs. By law, we are equal; but in practice, it is not so.”

—Female engineer and manager, Serbia

#### BOX 4.1: GENDER WAGE GAP IN WATER UTILITIES

Analysis conducted for this report using data from the United Nations Industrial Development Organization (UNIDO) reveals that in 2014, water utilities in developing economies were showing stagnant job creation and production and a slower growth rate compared with other activities. The decrease has pushed down overall real wages and value added per worker, impacting the proportion of women’s labor participation relative to men. This is because the limited number of jobs offered to high-skilled women in utilities push wages up through market forces, hence more men can fill in those jobs with more competitive wages and higher premiums in relation to women’s labor supply. As a result, the employment outcomes (wages or number of jobs) are proportionally higher for men than women. The chart illustrates these points. In water utilities, on average, men’s wages are 26.7 percent higher than women’s, and this gap is more pronounced in water than in other sectors. Factors contributing to the pay gap may include occupational segregation, differences in skill sets, and the large entry barriers (economic and noneconomic) faced by females entering subsectors with higher wages. These conditions call for increasing women’s participation in high-skilled (technical and managerial) jobs by ensuring they participate more in science, technology, engineering, and mathematics (STEM) careers and they obtain the right incentives for school-to-work transitions and career development.



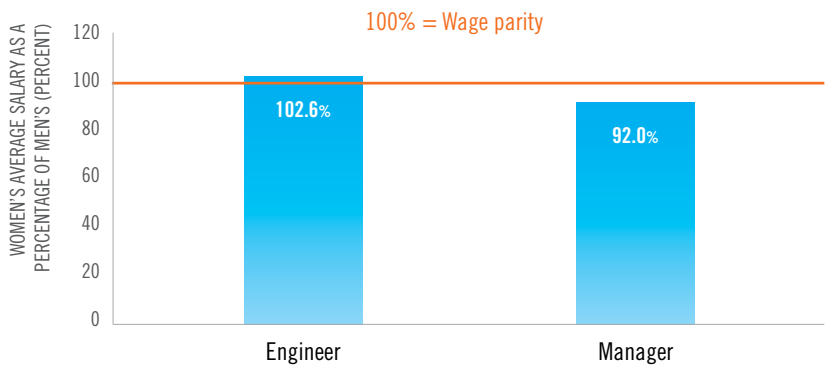
Sources: Own estimates based on ILOSTAT 2019 and UNIDO 2018.

Note: The lowest and higher lines represent the 5th and 95th percentiles of wage premiums and the boxes the median adjusting, weighted by the size of the subsector (size of box). This data set consists of 29 economies where data is available by sector and gender.

**Equal pay matters, but so do employees’ perceptions on getting paid fairly.** An employee survey carried out as part of the Economic Dividends for Gender Equality (EDGE) assessments in water utilities in Albania, Kosovo, and Romania showed that female employees are more pessimistic about the fairness of pay than their male colleagues. Concerned with these findings, the utility in

Romania commissioned an additional pay gap analysis, which indeed found a 5 percent pay difference—but it was in favor of women. This highlights the value of conducting detailed pay analysis to gather evidence for gender differences in wages. It also shows the importance of transparent and consistent communication with employees (World Bank 2019g).

**FIGURE 4.4: AVERAGE WOMEN'S SALARY AS A PERCENTAGE OF AVERAGE MEN'S SALARY, BY JOB TYPE**



Source: Responses to World Bank Utility Survey 2018–19 (N = 38 water utilities).

Note: Average salary for men and women by job type is calculated at each utility, which is then converted to a percentage by dividing average women's salary by average men's salary. This percentage is then averaged across all utilities in the sample.

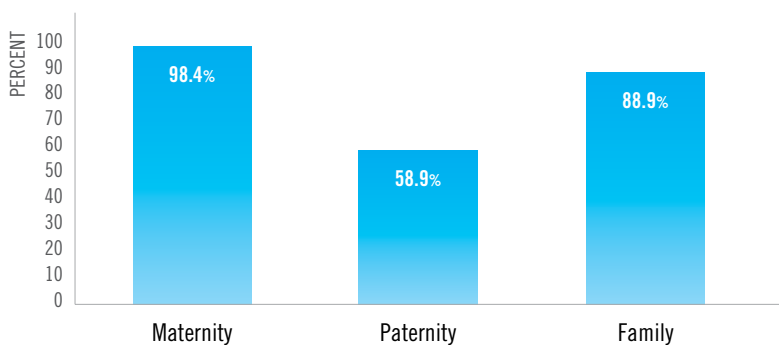
### Family-Friendly Policies

**A key component of family-friendly policies is maternity, paternity, and parental leave that allows the mother, father, or either parent to take paid leave following the birth of a child.** Of the 61 water companies surveyed for this study, 98 percent offer maternity leave to their female employees (figure 4.5), many of which are obligated by law to do. Indeed, there is only one water company in the sample that does not offer any maternity leave to its employees, despite a legal obligation to. The most common length of maternity leave across the companies surveyed is three months, which also happens to be the minimum required by national law in the respective countries. Standout examples in this regard are a water company in Romania, where the maternity leave is two years, or three years in the case of a disabled child, and Belarus, with maternity leave of up to three years. However, such long maternity leave can have unintended

consequences because it may distort the playing field in career progression. In fact, participants of focus group discussions in Belarus noted that although there are no institutional career constraints for women, men move up their career faster, in large part because women take long maternity leaves.

**Paternity leave is far less common among sampled utilities.** It is available in 59 percent of sampled companies (figure 4.5), with an average of 12 days. In addition to it not being a widely institutionalized policy, in several focus group discussions, men reported either not knowing of the existence of paternity leave or they said they rarely took it. In Belarus, men reported that they did not apply for paternity leave. One young man in Malawi reported that he would like to take paternity leave for the upcoming birth of his child but that he feared that doing so could upset his managers and colleagues and possibly even get him fired.

**FIGURE 4.5: MATERNITY, PATERNITY, AND FAMILY LEAVE OFFERED IN WATER UTILITIES**



Source: Responses to World Bank Utility Survey 2018–19 (maternity leave N = 61; paternity leave N = 56; family leave N = 54).

**“At our utility, there is adequate appreciation and accommodation for women’s special needs at work by men and women colleagues and bosses, but these were based on individuals’ disposition and goodwill, rather than being driven by policies and institutionalized.”**

—Female FGD participant, Bangladesh

**“As a young woman overseeing the work of 44 men in a large treatment plant, I faced many issues and I had to stay very tough. Initially the men, who were mostly older, refused to follow my instructions, and my male counterpart assumed decision making, even though he was not my boss.”**

—Female water quality officer, Ghana

**Family leave is offered in 89 percent of surveyed utilities (figure 4.5).** A less regulated benefit than maternity leave, family leave varies widely across companies and countries. A service provider in Angola, for instance, reported that family leave could vary from one day to six months, depending on the need of the employee. In Benin, a water company reported that family leave is based solely on the doctor’s prescription. Data from a utility in Papua New Guinea show that staff are entitled to strict 10 days of sick leave and an additional 10 days for personal reasons in a year.

**Investing in parental and family leave has economic benefits for a water utility.** Economic studies have shown that access to paid family leave significantly increases the likelihood that workers will return to their jobs after childbirth or after taking care of a sick family member instead of dropping out of the labor force. When employees return to work, employers benefit from reduced turnover and a more engaged and skilled workforce.

## Unsupportive Workplace Environment for Women

**Data collected for this study found that a key factor affecting women’s job satisfaction in water utilities is their isolation and a lack of support from colleagues and supervisors.** This has to do with a workplace environment that is pervasively male-dominated. Women sometimes report feeling like supervisors, senior managers, and coworkers treated them in a condescending and discourteous manner and that they were excluded from work opportunities that affect their advancement.

**Tied to this, women report sexist behavior.** Several participants of focus group discussions said that women are expected to dress well and look pretty and that they would be socially shunned if they took on “dirty” and “heavy” jobs. Discussion held in a water company that participated in the EDGE assessment revealed that female engineers felt discriminated against or pushed aside just because they were women. They felt that, overall, a perception that technical positions are for men prevailed, making it difficult for female engineers to live up to expectations.

## Sexual Harassment

**Although sexual harassment<sup>11</sup> takes place in many work environments, some studies suggest that it is particularly pervasive in fields dominated by men, such as STEM-related fields (Shaw, Hegewisch, and Hess 2018).** A study of women with STEM degrees working in the private sector found that 63 percent of women in engineering had experienced sexual harassment (Corbett and Hill 2015). Sexual harassment often does not get reported, so decision makers do not make it a point of concern or redress. But there are systemic reasons for the lack of reporting of incidences of sexual harassment: In many cultures, talking about sexual harassment is considered so sensitive and shameful that it becomes taboo. In others, sexual harassment is so pervasive that it gets normalized and, therefore, not addressed. It can also be that women do not want to stand out in a field in which they already feel so isolated, or there simply are not adequate reporting mechanisms in place.<sup>12</sup>

**“It might be difficult to increase women’s presence in the field, and they might face many challenges. They might not get the same respect from the people they are coordinating as men.”**

—Female utility employee, Romania

**“Once, a male employee refused to obey instructions that were key for our project. A male manager had to order him to obey my instructions—only then did he follow the order.”**

—Former female utility manager, Ecuador

“The utility has no washrooms or changing rooms for men and women, so women change their clothes to work-suits at an open place in the presence of men.”

—Male FGD participant, Malawi

“To go to the field, we are all packed into a large pickup truck. I know one woman who, even in the late stages of her pregnancy, was not given an alternative option than to squeeze into the pickup among all the men.”

—Female water quality officer, Ghana

**Other forms of harassment also exist and are also likely to contribute to a hostile workplace environment.** Making disparaging comments about certain employees or using derogatory language can act as an intimidating deterrent for those on the receiving end. Both male and female employees can be victims of harassment and abuse. For women who are already marginalized and isolated in a sector such as in water, such harassment is likely to augment their sense of exclusion.

**A high pervasiveness of sexual harassment emerged from the data collected for this study.** Being a sensitive and often taboo topic, sexual harassment issues were posed very delicately. The World Bank Utility Survey showed that out of the companies surveyed, only 28 percent offer sexual harassment training for their employees and only 52 percent have policies geared toward preventing sexual harassment. Sexual harassment in the workplace can be a tremendous roadblock for women. It can prevent women from advancing in their positions and is likely to reduce retention and tenure rates of women workers.

## Work Facilities Do Not Cater to the Needs of Women

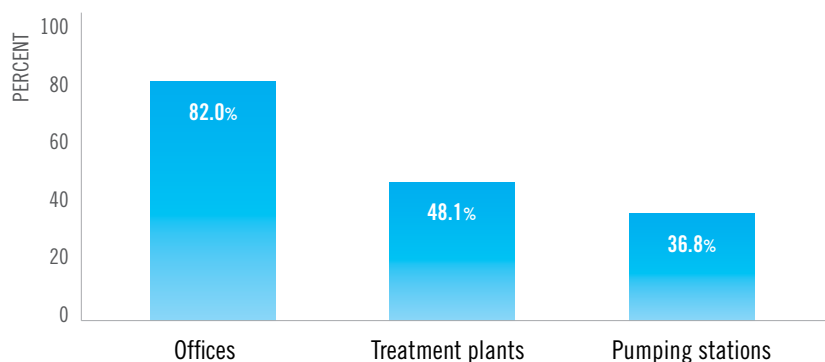
**Another effect of the male-dominated culture in water utilities is that work facilities and amenities do not cater to the needs of women.** This manifests itself not only in the

number of male employees but often in the infrastructure of the work environment itself. According to the survey, 18 percent of water utilities do not have gender-specific toilets in their offices. However, the situation is even more dire away from the headquarters, where only 48 percent of treatment plants and 37 percent of pumping stations have toilets for women (figure 4.6). In Belarus, for instance, focus group discussions noted that although female employees work at the utility, there are no separate toilets in any of the buildings and no additional sanitary facilities for women are provided.

**Because of their biological differences, women require specific sanitary facilities during menstruation, postnatal periods, and menopause.** These needs can be met with simple solutions, such as including locks, sanitary disposal bins, and handwashing into the sanitary facilities—measures like these can go a long way toward safeguarding the privacy and dignity of female staff. Data collected through the survey showed that those utilities which had gender-specific sanitation facilities reported being relatively well-equipped for women to manage their sanitary and hygiene needs, with 90 percent having safe locks, 88 percent disposable bins, 95 percent adequate lighting, and 95 percent handwashing facilities.

**Women working in water utility operations, such as on construction sites or as plumbers, often need to change their clothes while at work, but many report that they**

**FIGURE 4.6: TOILETS FOR WOMEN IN WATER UTILITIES**



Source: Responses to World Bank Utility Survey 2018–19 (N = 60).

**lack access to a private space to do so.** A female plumber in Malawi who participated in a focus group discussion complained that because there was only a single bathroom on-site, she and one other female colleague had to wait until all the men changed before they could change out of their soiled clothes, causing discomfort and delay in tending to their other tasks.

**Childcare facilities and lactation facilities are mostly lacking across the utilities surveyed.** Only four offer childcare services—one each in China, Papua New Guinea, Uruguay, and West Bank and Gaza—and only four utilities surveyed had lactation facilities—one each in Cambodia, New Caledonia, the Philippines, and Uruguay. Although all of these had lactation rooms in their offices, only three had them at their treatment plants and one at their pumping station.

**Women water workers that participated in focus group discussions emphasized that lack of childcare facilities or lactation rooms meant that women are not supported in their dual roles as employees and mothers.** Women in focus group discussions in Egypt said having a childcare facility on-site would help them and would enhance their productivity. Currently, they have to make special arrangements because childcare facilities close before they finish work. Similarly, women in focus group discussions in a utility in Malawi said that the lack of lactation rooms affects not only their immediate experiences as mothers but also their career progression. They explained that nursing mothers often must rush home to feed their infants during their one-hour lunch breaks, which means that they sometimes report back to work late. This, in turn, means that they are, or appear to be, less productive than their male colleagues.

---

**“Sometimes women are absent or report late for work when they are menstruating.”**

—Female FGD participant, Malawi

**“In my previous job, I established a lactation room in the Ministry of Revenue’s government building in Samoa. There was nothing like that before. There are small things that you can do. They cost money, but they promote care for women.”**

—Pitolau Lusua Sefo Leau, CEO, Pacific Water and Wastewater Association

## PROMISING APPROACHES TO ADDRESS THE BARRIERS TO RETAIN WOMEN

**Although women in many water utilities face barriers that affect their ability to work while maintaining their responsibilities as caregivers, as well as to manage their sanitary and safety needs, there are various approaches and initiatives that can help ensure women who enter employment in a water organization do not leave prematurely.** This section outlines key approaches adopted at the utility level and among other related industries to improve the working conditions of women. The table at the end of this chapter summarizes these approaches and provides a more comprehensive list of examples from the field.

### Facilitating Employees’ Work–Life Balance

**It is assumed that women will face interruptions in their employment history because of childbearing and other caring responsibilities (for example, elderly relatives).** To retain female employees, companies should provide maternity and paternity leave, childcare facilities at the workplace, prevention of dismissal, and policies to facilitate the reentry of women workers. In many countries, companies are required to provide some paid parental leave for new parents. Companies can support employees by reviewing parental leave policies to ensure that both men and women can take parental leave without being disadvantaged in their career advancement. Furthermore, pregnancy or motherhood should not constitute a basis for firing women workers in their childbearing years.

**Lack of access to quality and affordable child care remains a major barrier to women’s greater participation in paid employment because women are still much more likely than men to bear childcare responsibilities.** Utilities can support their women employees by establishing childcare facilities or providing monetary assistance for childcare arrangements. The business case for employer-provided child care includes improvement in recruitment and retention of women workers and, therefore, greater gender diversity, increased productivity, and decreased tardiness and absenteeism, which can have significant costs for companies (IFC 2017).

**In addition to parental leave, water companies should establish return-to-work policies that provide a transition back to full-time work for parents returning from leave.** This would include the ability for workers to retain their employment benefits and employment status, the ability to exercise existing competencies (that is, no downgrading)

and develop new skills, as well as the sense that they are still respected and enjoy appropriate “standing” in the eyes of their coworkers and line managers (Turnbull 2013). Other policies to support reentry of workers include telework for part of the work week, flexible work schedules, shorter workdays, and longer lunch breaks for baby feeding (USAID 2018). A manager in Albania interviewed for the study said that employees who choose to return from maternity leave early (before one year) work a reduced schedule—six hours instead of eight. Finally, companies need to ensure that pension plans are structured in such a way that women are not at a disadvantage if they take career breaks for family obligations.

## Inclusive Workplace Environment: Create a Sense of Belonging

**Creating a sense of belonging for employees is one of the most important factors in improving retention.** Utilities can improve workplace culture to be more inclusive of women through a number of actions and policies, including:

- Embracing gender diversity as a source of competitive advantage—in this sense, various utility companies are starting to develop and implement gender diversity strategies
- Being proactive and vocal about management’s commitment to increase the representation of technical women in their organization
- Providing opportunities for women to develop a support network with other technical women
- Instilling a corporate culture that encourages a supportive, friendly, and respectful environment and working to root out uncivil and undermining behaviors

### **Training can also be valuable to foster inclusion and appreciation of gender diversity among employees.**

Suez Water, for example, partners with PRISM International, Inc.<sup>13</sup> to provide diversity training to its employees (Suez Water n.d.). The training covers hands-on approaches for recognizing, respecting, and leveraging differences and similarities within an organization. Such approaches can create an environment that allows everyone to feel welcome.

## Improve Working Facilities That Cater to the Needs of Women

**Improved gender-friendly facilities can go a long way toward improving the working conditions of women and fostering a more inclusive environment.** This could translate to more women being retained in the workforce, which would create a new generation of role models, which in turn could motivate aspiring young women to enter the talent pool. Water utilities can ensure the provision of various amenities in plants, such as:

- Providing equal access to sanitation and personal care facilities (for example, restrooms and changing rooms) for men and women
- Ensuring facilities allow women to manage their menstrual hygiene needs in a safe and private manner, such as by ensuring sufficient lighting, handwashing facilities, and disposal bins
- Providing women with amenities such as lactation rooms
- Adopting safety policies addressing the needs of men and women
- Including health and safety protocols in job duties and responsibilities
- Providing women equal access to personal protective equipment

## Address Sexual Harassment in the Workplace

**Sexual harassment and other forms of harassment are significant barriers to the successful integration of women in water utilities.** Such problems are also aggravated by employees’ lack of awareness about the existence of anti-harassment policies at the workplace and/or lack of trust in the complaint process, as well as the tendency of victims to not report such situations. Ultimately, employers have the most power to establish a work environment that treats all workers equitably and respectfully. They can and should set and clearly communicate about policy, conduct sexual harassment prevention training, monitor the workplace, and investigate complaints promptly and thoroughly. The Solomon Islands Water Authority, for instance, participates in the Mere Waka Initiative, which aims to promote gender equality in the workplace, including by promoting supportive workplaces for women and men (IFC n.d.). In line with this, managers and operational staff have participated in training on promoting





respectful workplaces. The utility has also conducted a baseline survey to assess levels of bullying, harassment, and comfort in the company. It will use the information to adjust its policies, procedures, and trainings, as well as to monitor progress. The company has also adopted policy to address issues related to domestic violence (IFC 2018a).

### Develop and Implement Policies and Processes to Remove Salary Inequities

**To attract and retain a gender-diverse workforce, potential candidates need to be confident that they are being paid fairly for their work.** “Equal pay for equal work” means that men and women receive the same pay and same benefits for the same work and/or for jobs requiring similar levels of skill or qualification.

**Water companies can conduct a pay gap assessment to identify differences in the ways men and women are being compensated for equivalent work—at different levels and in different functions.** The results of these reviews are critical for companies to gain insights into prevalent

pay gaps and help them develop intelligent solutions aimed at tackling the causes of pay inequality. Based on priority actions identified after participating in an EDGE assessment, the Tirana Water Utility in Albania and the Brasov Water Company in Romania plan to conduct yearly gender pay gap assessments. Using a regression analysis, these assessments will cover base salaries as well as bonuses and other cash benefits. As previously mentioned, the Brasov Water Company already conducted one such analysis, which revealed a discrepancy between the perceptions of female respondents and actual salary gaps. As a result, they are now communicating more clearly and proactively about their commitment to ensure pay equity among men and women (World Bank 2019g).

**At the policy level, governments can mandate transparency around pay gaps.** Australia, Germany, Austria, and Belgium have passed laws requiring companies of a certain size to publish pay gap information. The United States adopted a similar law in 2016. Since 2018, the United Kingdom requires companies with more than 250 employees to publish their pay gap (IFC 2018b).

## AT A GLANCE: RETAINING WOMEN IN THE WATER SECTOR

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>Work-life balance</b>		
Work life conflict that disproportionately disadvantages female workers	<p>Maternity, paternity, and parental leave policies</p> <p>Childcare options: on-site childcare facilities or monetary assistance for childcare arrangements</p> <p>Laws preventing/penalizing employer from firing pregnant women</p> <p>Laws requiring employers to guarantee employees returning from maternity leave the same or an equivalent position</p> <p>Communication plans to raise awareness on policies, laws, and arrangements among employees; guidelines for managers on ensuring flexible work arrangements</p> <p>Return-to-work arrangements for returning parents, such as phased return schedules, whereby hours of work are progressively increased until a final schedule is reached</p> <p>Flexible work arrangements, including options for part-time employment, telework, flexible core hours, job-sharing arrangement, etc.</p>	<p><a href="#">Electronic Distribution Company (EDCO)</a>, an electricity utility in Jordan, offers flextime for mothers</p> <p><a href="#">Unitywater</a> in Australia established job-sharing arrangements at senior leadership levels</p> <p><a href="#">Victoria Water Corporation Board</a> in Australia developed a toolkit and offers workshops on workplace flexibility for employees</p> <p><a href="#">Melbourne Water</a> in Australia provides education on flexible work practices to managers</p> <p><a href="#">EDCO</a> built a day-care center on-site</p> <p><a href="#">IFC, World Bank Group</a>, demonstrates the business case for employer-supported child care</p> <p><a href="#">Technical and Vocational Colleges in Philippines</a> offer childcare services to their students</p> <p>The <a href="#">Prishtina Regional Water Company</a> in Kosovo is reviewing their HR regulations in order to formalize flexible work policies</p>
<b>Inclusive work environment</b>		
Unsupportive work environment for female employees	<p>Training managers how to promote a supportive, family-friendly, and respectful work culture</p> <p>Gender diversity strategy/action plan that is endorsed by the executive</p> <p>Gender focal points that ensure gender needs are met</p> <p>Workshops that tackle unconscious bias in the workplace, including managers</p> <p>Training on gender sensitization for all employees</p>	<p><a href="#">Barwon Water</a> in Australia has a diversity, equity, and gender equity strategy</p> <p><a href="#">USAID's Engendering Utilities Program</a> helps electricity companies develop gender action plans and implement change management in their institution</p> <p><a href="#">Sydney Water</a> has an Inclusion and Diversity Advisory Council</p> <p>In <a href="#">Morocco, a major solar plant</a> implemented provisions for a safe and positive work environment for women and thereby enabled them to work in a range of positions</p> <p>The Palestinian Water Authority has a gender strategy that aims to achieve gender-sensitive institutions for employment, capacity development for women in decision-making levels, and more access to women to management positions</p>

Workplace facilities		
Workplace facilities that do not cater to the needs of women	<p>Water facilities/sites should provide:</p> <p>Separate sanitation facilities for men and women</p> <p>Sanitation facilities for women with provisions for menstrual hygiene management (including locks, bins, and handwashing facilities)</p> <p>Health and safety standards that consider the needs of men and women</p> <p>On-site lactation rooms</p> <p>Policies allowing nursing mothers break times to nurse/pump</p>	<p><a href="#">Companies in Australia</a> offer paid menstrual leave</p> <p><a href="#">A World Bank Waterway Transport</a> project is designing toilets that address safety-related issues for women</p> <p>In the United States, the <a href="#">Occupational Safety and Health Administration</a> requires employers in construction sites to provide separate sanitary facilities for female employees</p>
Sexual harassment		
Work-place harassment, including sexual harassment	<p>Codes of conducts for all employees related to harassment, including sexual harassment</p> <p>Antisexual harassment policies for protecting employees</p> <p>Safe and fair procedures for reporting and responding to sexual harassment</p> <p>Training on sexual harassment to all employees</p> <p>Safe transportation and field-site accommodations for women operators</p>	<p><a href="#">Unitywater</a> in Australia partners with organizations fighting domestic violence</p> <p><a href="#">The Solomon Islands Water Authority</a> offers training on respectful workplaces; will adapt their policies, procedures, and trainings based on information from a survey conducted to assess levels of harassment and bullying in the utility; and has implemented policy to address issues related to domestic violence</p> <p><a href="#">Suez India</a> has set up a Constitution of Internal Complaints Committee, constituted at all administrative units and offices, that addresses any sexual harassment complaint as and when it arises; sensitization workshops are conducted regularly to sensitize both men and women on sexual harassment</p>
Salary inequities		
Men and women are often compensated differently for equivalent work	<p>Conduct a pay gap assessment</p> <p>Consider bonuses and other types of pay benefits, beyond salaries</p> <p>Equal pay for equivalent work policies</p>	<p><a href="#">The Tirana Water Utility and the Brasov Water Company</a> plan to conduct yearly gender pay gap assessments. The Brasov Water Company already conducted its first pay gap assessment, which revealed discrepancies between employees' perceptions and actual salary gaps. As a result, they are now communicating more clearly about their commitment to ensure gender pay equity.</p>

## NOTES

<sup>10</sup> Pay analysis was not the purpose of the World Bank Utility Survey 2018–19; information was self-reported by utilities on an aggregate level. These findings are provided for illustrative purposes only.

<sup>11</sup> Sexual harassment is defined as an unwelcome sexual advance; a request for sexual favor; or other verbal, nonverbal, or physical conduct of a sexual nature that unreasonably interferes with work; alters or is made a condition of employment; or creates an intimidating, hostile, or offensive work environment (World Bank Training to Staff on Sexual Harassment).

<sup>12</sup> A high prevalence of sexual harassment has high costs. For the individual, it can cause physical and mental harm, as well as possible damage to career advancement. For the company, it can cost lower productivity and increase absenteeism and employee turnover (Shaw, Hegewisch, and Hess 2018).

<sup>13</sup> PRISM International is a service provider that assists organizations around the world by providing a systemic diversity and inclusion process and best-in-practice performance solutions.



## 5

## ROOM TO GROW: Building Career Advancement Paths for Female Employees

**T**his chapter focuses on advancement, the final stage of the employee career cycle. Providing employees with opportunities for professional development, such as training, mentoring, or promotions, is one way of overcoming the problem of retaining qualified staff, as discussed in the previous chapter. However, literature points out that female employees are rarely given equal opportunities to advance in their careers. This view is supported by many interviews and focus group discussions (FGDs) held with male and female employees in water utilities. The 2018–19 World Bank Utility Survey findings tell a slightly different story. According to the survey data, proportionately speaking, women on average receive more opportunities for training and have similar chances of getting promoted as men. It is possible that these findings indicate that utilities are becoming more welcoming to female staff. Providing opportunities for advancement not only is beneficial for individual female employees but also can bring benefits to the organization. Trained employees are more skilled and qualified to contribute to the efficient functioning of the company. Fair promotion opportunities for all employees, including women, are likely to result in improved employee satisfaction and engagement, which in turn can drive performance results. In addition, as discussed in chapter 1 (see box 1.1), a gender-diverse leadership team can bring benefits on multiple levels. The chapter provides a menu of promising approaches with practical examples that can help increase the opportunities for advancement and career development of female employees in the water sector.

**“Since there are more women in the Economic Department, they have more space to support each other. In technical fields, which are dominated by men, women are more focused in holding on to their own position than they are on helping other women.”**

—Female utility employee, Romania

---

**To ensure a continuously skilled and adept workforce, and to ensure employee satisfaction so that people do not leave the company, employers need to offer opportunities for advancement.**

Literature shows that opportunities for training, mentorship, networking, and leadership go a long way toward improving the skills and well-being of employees, particularly female employees. Moreover, advancing the career paths of women increases the likelihood that they will stay in the workforce and thereby spare the company turnover costs.

## **BARRIERS TO WOMEN’S ADVANCEMENT IN THE WATER SECTOR**

### **Fewer Training, Mentorship, and Networking Opportunities**

**Training is important for workers to upgrade their skills and keep abreast of changing technologies.** This is particularly relevant if workers do not have higher-level educational attainment. Data from the United States, for instance, show that most water workers have limited formal education (Kane and Tomer 2018). These data show that 53 percent have a high school diploma or less education, which is a far higher proportion than workers across all occupations nationally (which is at 33 percent). However, for 78 percent of water workers, a requirement to enter the workforce in water utilities in the United States is at least one year of related work experience, and 16 percent of workers need four years or more of work experience. This highlights the need for applied, on-the-job technical training (Kane and Tomer 2018).

**Despite evidence pointing out the importance of training, literature suggests that for a host of reasons, women often receive fewer opportunities for training.** Research conducted among 5,500 female engineers found that one of the main reasons cited by them for leaving their work was the lack of training and development opportunities to advance in their careers (Corbett and Hill 2015). This is

echoed by an assessment conducted among 15 companies in Solomon Islands, including the Solomon Islands Water Authority, which revealed that more than one-quarter of women in these companies reported that they did not have equal access to training and development opportunities (IFC 2018a). Sometimes, women may be excluded from training deliberately, such as when employers do not offer them certain opportunities, knowing that they will have to interrupt their careers for childbearing or other caregiving responsibilities (Turnbull 2013). Other times, it may be unintentional, such as when training is scheduled at a time that is inconvenient for women who have childcare responsibilities, making it difficult for them to attend even if they are invited (ILO 2019b).

**Mentorship and networking opportunities have also been identified as important contributors to professional development that are often unavailable to women.**

Networks and mentors, whether formal or informal, help employees build connections and skills. Some literature suggests that existing social networks and mentorship structures in engineering are often made up of powerful men, and without access to these connections, women face barriers in advancing in their careers (Corbett and Hill 2015).<sup>14</sup> As with many other barriers that women confront, the exclusion of women from networks and mentors can be explained partly by their family responsibilities, which leave them with little time to build formal and informal professional networks (Eagly and Carli 2007).

**Data from the World Bank Utility Survey show different trends in terms of training, with female employees being offered more opportunities for training on average than men.** Training categories included in the survey were technical skills, leadership, and communication. In all three categories, companies reported that, proportionately speaking, women receive more training than men (figure 5.1). The largest gap between men and women is in leadership and communication training. One possible

---

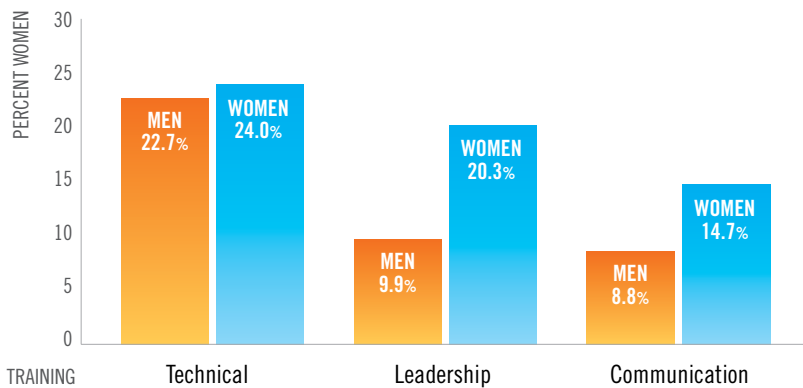
**“I mentored several of my female employees and encouraged one of them to study civil engineering—This woman is now working as a manager at the utility.”**

—Former female utility manager, Ecuador

**“I had to go back and forth daily from Zagazig to Cairo for the training because I could not be away from home and the children.”**

—Female FGD participant, Egypt

**FIGURE 5.1: TRAINING OF WOMEN IN WATER UTILITIES, 2018**



Source: Responses to World Bank Utility Survey 2018–19.

Note: Share of employees trained, by gender, N = 47.

explanation for this is that female employees in a water company tend to be clustered in office jobs—in finance, human resources, customer relations, and so on—where they are most likely to be the recipients of leadership and communication training. By contrast, in technical training, there is only a marginal difference between men and women, which may be because such training is often field based, so it does not reach a greater number of women. Another explanation is that utilities are becoming more welcoming to female staff.

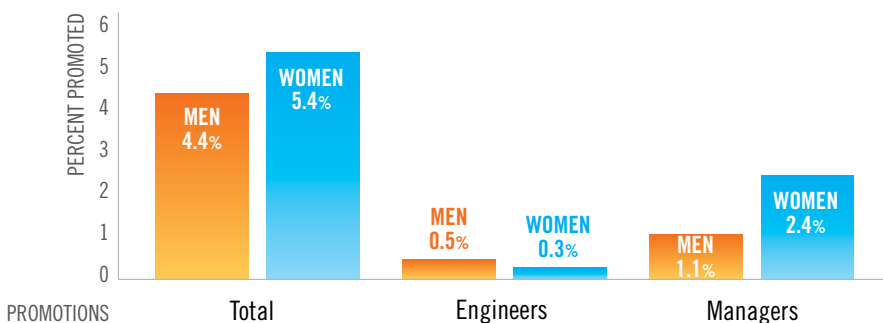
**Qualitative data collected for this study counter the findings from the World Bank Utility Survey regarding training opportunities.** Female respondents from some interviews or FGDs expressed that they perceive women to have fewer opportunities for training than men in the same company. For instance, although participants from FGDs in Egypt said that women and men were offered equal access to training opportunities, most agreed that for women it was problematic to attend training offered outside of their governorates because of their care responsibilities. A similar sentiment was voiced by women in Malawi, who

complained that the few training opportunities offered at their utility always go to the same select group of men. Such perceptions are supported by data from an employee survey in water companies in three Eastern European countries, as part of an EDGE assessments, which showed that women are more pessimistic about being offered equal opportunities for training.

### Exclusion from Opportunities for Advancement and Leadership

Literature suggests that women are consistently excluded from leadership positions, a situation that is inextricably tied to their lack of opportunities in training, networking, and mentorship. This is attributed to a “leaky” talent pipeline, whereby at each career step in science, technology, engineering, and mathematics (STEM)–related or other technical fields, women are increasingly left behind. In the water sector, this has been called the “missing women” in water leadership (Jalal 2014). Data from the World Bank Utility Survey suggest that women are not

**FIGURE 5.2: PROMOTION OF MEN AND WOMEN IN WATER UTILITIES IN THE PAST YEAR, 2018**



Source: Responses to World Bank Utility Survey 2018–19.

Note: Values are calculated by first taking the share of each worker type (gender and position) that was promoted in the last 12 months at each utility and then averaging values across utilities. N = 42.

**“For women to be taken seriously they have to work twice as hard, even if they are in the same positions as men or applying to the same positions.”**

—Female water utility employee, Kosovo

always faring badly when it comes to promotions. In the companies surveyed, female water workers were promoted at similar or slightly higher rates than men, which could be an indication of a changing environment. On average, 4.4 percent of men were promoted in the past 12 months compared with 5.4 percent of women. Female managers were promoted at a rate of 2.4 percent compared to 1.1 percent for male managers. Men and women engineers were promoted at comparable rates of 0.5 and 0.3 percent, respectively (figure 5.2). Nevertheless, given the small sample sizes and the wide variance in responses, the differences between men and women across job types are statistically indistinguishable.

**Perceptions of gender gaps in promotions among employees and recorded promotions in utility surveys do not always neatly match up.** A repeated sentiment that emerged from qualitative data was that even when female employees are qualified, they are often not given the same opportunities for promotions as their male counterparts. Focus group participants in Malawi, for instance, said that hiring managers are more likely to hire externally than to promote qualified women already within the utility. Similar pessimistic views held by female employees regarding promotion practices were captured by the Economic Dividends for Gender Equality (EDGE) assessments carried out in water utilities in three Eastern European countries. In an employee survey, when asked whether they are given fair opportunities to be promoted in the company, on average 24 percent of the women from the three utilities responded that they disagree or strongly disagree with the view, in contrast to 17 percent of the men responding (World Bank 2019g). Similar sentiments were shared by women interviewed for the study. According to a female utility manager in Serbia: “Although women are equally paid for doing the same work as men, men are given priority when it comes to choosing for leadership and advancement, because of the still present prejudices that women will not be able to respond to the task and problems of work.”

**Whether female managers are promoted at higher rates than male managers or not, it is irrefutable that in absolute terms, there are fewer women in managerial positions.** As figure 2.1 showed, in all utilities surveyed, on average only 23 percent of the managers are women. At top management positions, women are often even more

starkly underrepresented. The EDGE assessment, for instance, showed that of the three utilities from the Eastern European region that participated in the assessment, only one utility had women in top management positions (World Bank 2019g). In several FGDs and interviews, it emerged that when women are represented at the management level, they are often managers in nontechnical departments. One explanation often provided for this shortage of women in leadership positions is that the pool of qualified candidates is limited (Folkman 2015; Tortajada 2003). Because men have historically dominated the sector, they have accumulated more experience and are thus better positioned to get promoted. According to this logic, if more women enter the sector, they will rise to leadership positions over time.

**However, this explanation, based on available talent, leaves out more complex cultural factors that affect women’s opportunities to getting promoted to leadership positions.** Stereotypes held about leadership are embedded in mind-sets and translate into the systematic disadvantage of potential female leaders. Studies have shown that qualities unconsciously associated with leadership are often also qualities associated with men, including assertiveness, aggression, and ambition (Eagly and Carli 2007; Elmuti, Jia, and Davis 2009; Ibarra, Ely, and Kolb 2013). By contrast, women are often associated with communal traits, such as being helpful, nurturing, or modest—traits that are considered attractive in women but ineffective for leadership (Eagly and Carli 2007). These prevailing stereotypes or double binds often mean that women who exhibit leadership styles traditionally attributed to men are seen in a negative light or disliked by peers but women who exhibit leadership styles traditionally attributed to women, such as communal leadership styles, are not considered assertive enough (Eagly and Carli 2007; Groysberg and Connolly 2013; Ibarra, Ely, and Kolb 2013). In either case, such stereotypes affect women’s opportunities

**“Here in the Zone, there are no women in management positions, like Zone managers. The impact is that we women are sidelined because we don’t take part in decision making. We don’t have a voice.”**

—Female FGD participant, Malawi

**“Our mentality in Tanzania is that men are better than women. So I have to prove that it’s not true.”**

—Female engineer, Tanzania



**“Throughout my career I’ve had to work double to combat the image that women are not good as technical professionals and as managers.”**

—Former female utility manager, Ecuador

---

for promotion and often mean that female leaders must deal with additional resistance from peers and supervisees (Eagly and Carli 2007; Groyberg and Connolly 2013).

**Female leaders are often held to a higher standard and are expected to meet higher performance criteria (Corbett and Hill 2015).** McKinsey studies showed that women are often evaluated for promotions primarily on performance, whereas men are often promoted on potential (McKinsey & Company 2011). This view was reiterated by several female professionals who participated in FGDs and interviews. Most agreed that women must work especially hard to prove that they are as capable as men or are ready for more levels of responsibility.

## PROMISING APPROACHES TO ADDRESS THE BARRIERS TO ADVANCING WOMEN

**Although women in many water utilities face barriers in training, mentoring, networking, promotion, and leadership opportunities, various approaches and initiatives can help advance their careers in the water sector.** This section outlines key approaches adopted at the utility level and among related industries. The table at the end of this chapter summarizes these approaches and provides a more comprehensive list of examples from the field.

### Increased Training Opportunities

**Trained employees are valuable.** As technologies change and companies modernize, they require a skilled workforce that stays abreast of these changes. Employees with up-to-date training in areas such as technical, communication, and managerial skills are likely to complete tasks more effectively and efficiently. Ensuring that female employees have equal access to training opportunities allows companies to maximize the knowledge and skill sets of all employees and to thereby enable higher performance. It also allows companies to better serve their customers. This was the case in an International Labour Organization (ILO)–supported training program in Jordan that provided training to female plumbers (ILO 2019a). The training built women’s skills in conducting maintenance work, repairs, and installations and promoted their employment. Female

plumbers have the advantage that they can access the homes of female customers who might be alone during the day without trespassing gender norms. The training, which focused on strengthening women’s skills in different areas, allowed women to compete with their male colleagues and therefore contributed to their career growth. With the support of the World Bank–financed Greater Beirut Water Supply project, Lebanon’s Beirut Mount Lebanon Water Establishment plans to offer targeted training for female employees seeking to build their technical competencies and skills in areas such as public speaking and management. The aim is to facilitate women’s increased participation in senior, operational, management, and leadership roles (World Bank 2018c). To foster the career advancement of female staff, Burkina Faso’s Ministry of Water and Sanitation, which includes Burkina Faso’s urban water utility Office National de l’Eau et de l’Assainissement (ONEA), plans to use internal communication campaigns to encourage women to apply to specialization, doctoral, and short-term training sponsored by the World Bank’s Burkina Faso Water Supply and Sanitation Program-for-Results (2018–23; World Bank 2018a).

**Training on gender sensitivity and gender mainstreaming for employees and managers can also improve women’s opportunities for career advancement.** Such training can help create awareness of biases and discriminating practices and introduce entry points for addressing gender gaps at the utility level. The Danube Water Program is planning to launch a course for utility managers that will include a module on how to incorporate gender and diversity aspects in HR management (World Bank 2019g). Uruguay’s Obras Sanitarias del Estado (OSE) is one of the early adopters of the country’s Gender Equality Model, a tool aimed at helping public and private organizations incorporate gender equality in their management processes. One of the thematic action areas proposed by the model is to provide training and development opportunities that contribute to women’s professional advancement, as well as a respectful and equal work environment (Estoyanoff Portela et al. 2017). Under this

---

**“If I could recommend one measure to address the barriers faced by women in this sector it would be to increase their access to capacity building. In this industry, there are continuous changes in technologies. Since women are in spotlight, they can also be more penalized for not staying up to date.”**

—Former female utility manager, Ecuador



### **BOX 5.1: ADVANCING PROFESSIONAL OPPORTUNITIES FOR WOMEN IN THE WATER GLOBAL PRACTICE AT THE WORLD BANK**

The Water Global Practice (WGP) acknowledges the importance of diversity and inclusion (D&I) and is committed to achieving corporate D&I goals. It focuses on three pillars: (1) sourcing talent (attracting and recruiting outstanding candidates), (2) building a pipeline of diverse candidates (retaining, training, and nurturing the careers of diverse candidates), and (3) promoting an inclusive work environment while providing flexible work arrangements and the conditions for a positive work-life balance. Specific actions on this front have targeted analytical undertakings of career statistics for men and women in the WGP, including parameters such as new hires and staff breakdown by grade and gender. In 2017, the Women in Water Network was created as a staff-led initiative to provide a platform for female staff in the WGP to network, mentor, and support one another. The network developed an action plan with priority actions and a well-defined reporting baseline. In addition, the network has provided training opportunities in communications, leadership skills, and unconscious bias, as well as mentoring or coaching

exchanges to support career development. The network is also organizing a seminar series with internal and external speakers to raise awareness about gender issues. To complement efforts, senior management initiated FGDs with junior technical female staff to uncover challenges and constraints faced by women in the workplace and develop ideas for the way forward. Best practices implemented in the WGP include (1) continuing to manage recruitment and selection practices to yield diverse pools of potential candidates, (2) ensuring consistent and frequent career conversations with staff, (3) identifying opportunities for cross-collaboration or stretch assignments, (4) supporting mentoring exchanges through formal and informal networks, (5) providing training for soft-skills development, and (6) monitoring these efforts while creating awareness and reducing misperceptions among staff members.

*Source: World Bank WGP.*

## BOX 5.2: SERBIA'S WOMEN IN ENERGY INITIATIVE

The Women in Energy Initiative was launched in 2018 under the Public Expenditure and Public Utilities Development Policy Operation. In Serbia, the World Bank worked with the Electric Power Industry of Serbia (EPS), the largest power company in the southeastern Europe region, to improve its financial and operational efficiency, which included staff reductions. A series of development policy loans were designed to help the company in the process. During the dialogue related to the reform, a concern was raised that staff reduction may lower the share of female staff, which initiated a series of conversations about advancement opportunities for women. Women represent 20 percent of the EPS staff of around 30,000 employees. As part of the initiative, the World Bank financed a Pilot Women Leadership and Empowering Program, which aims to increase the percentage of women in managerial and technical roles. The program was launched with a pilot three-day leadership training

session for technical and managerial female staff in the utility, with 100 women trained so far, among them 28 managers. Other activities included creation of an online networking platform for training participants and a mentoring program. In the future, the program is planning leadership training for men, with a module on unconscious bias. Lessons learned from the pilot program highlight the importance of (1) having a strong and motivated internal champion of change; (2) having a strong capacity inside EPS to carry out the leadership program; (3) approaching the topic from the bottom up by speaking directly with employees and managers, such as by using the leadership training as an entry point; and (4) creating a demand for program activities by promoting them among staff members.

*Source: Presentation by Jelena Dancevic and Jelena Lukic at the World Bank, May 9, 2019.*

action area, the utility has developed a series of training sessions to sensitize employees on gender issues, including training on masculinities and sexual harassment at work (in-depth interview, utility employees, Uruguay). Additional information on actions adopted by Uruguay's OSE is available in box 6.3.

## Targeted Mentoring and Networking Programs

**Employees benefit from access to mentors and networks that help them advance their career.** Women, who have historically been marginalized from institutions such as water utilities and are likely to feel sidelined, can particularly profit from formal and informal support structures. Such enabling structures can take multiple forms, including sponsorship programs or female-run professional networks. Recognizing the importance of such forms of solidarity structures, Sydney Water (n.d.), for example, offers its employees reversed mentoring, in which younger employees are formally paired with older employees. Meanwhile, the Tirana Water Utility in Albania plans to set up a formal mentoring and leadership program and will assess the effectiveness of this by tracking the promotion rates of male and female mentees (World Bank 2019g). In other companies, employees support one another more informally. FGDs in Belarus revealed that it is common practice for managers or senior specialists to help new employees adapt to and understand their work duties. The Women in Water Network of the World Bank is a platform for female water professionals to support and mentor one another (box 5.1).

## Enhanced Female Leadership

**Identifying strong leaders requires tapping into all available talent, which includes women.** As discussed in chapter 1, a growing body of evidence suggests that diversity in leadership teams improves performance on several accounts, including increasing productivity, enhancing innovation, and improving decision making. There are multiple approaches an organization can take to identify potential leaders and enhance their competence. For example, it can reform the promotion process to ensure the most qualified candidate is selected, regardless of gender. A program in Egypt, the Sustainable Rural Sanitation Services Program-for-Results, is supporting water and sanitation companies from selected directorates to promote equal recruitment and promotion practices. Among recommended measures, it proposed review of HR policies, promotion procedures, and guidelines to ensure that there are specific criteria for selecting top management positions (World Bank 2018b). Companies can introduce a performance system that identifies talented women to be promoted (box 5.2). United Water Supply Company of Georgia, for instance, hired an HR expert firm to design a performance system and develop an incentive system that would enable talented women to be promoted (Abuladze 2014). A utility can also set targets for gender composition in leadership positions. Sydney Water (n.d.), for instance, has set a target to increase women's representation in leadership roles to 40 percent by 2020 and regularly measures its progress.

## AT A GLANCE: SUPPORTING WOMEN'S ADVANCEMENT IN THE WATER SECTOR

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>Increased training opportunities</b>		
<p>Less access to training opportunities, particularly technical training</p> <p>Less training so that women cannot advance in their careers and compete with male colleagues</p> <p>Caregiving roles that conflict with training opportunities</p>	<p>Equal access to training, for women including in small service providers, to enhance technical, leadership, management, and negotiation skills</p> <p>Training that tackles gender stereotypes, such as mandatory training on a gender-friendly work environment and gender sensitization for staff and management</p> <p>Training delivered at times and locations accessible to both men and women</p> <p>Gender awareness training offered to staff every two years</p>	<p>In Jordan, an <a href="#">ILO-supported program</a> provides training for female plumbers.</p> <p><a href="#">Suez Water</a> offers diversity training to its employees.</p> <p>Lebanon's <a href="#">Beirut Mount Lebanon Water Establishment utility</a> plans to support targeted training for female employees.</p> <p>Burkina Faso's Ministry of Water and Sanitation plans to use internal communication campaigns to encourage female staff to apply to scholarships for short-term training, specialization, and doctoral programs sponsored by a <a href="#">World Bank-supported project</a>.</p> <p>The <a href="#">Uganda Water and Sanitation Liaison Department</a> offers gender awareness training to staff every two years.</p> <p>The <a href="#">Danube Water Program</a> has a module on how to incorporate gender and diversity aspects in HR management.</p> <p>Uruguay's <a href="#">OSE utility</a> offers training to sensitize employees on gender issues, including training on masculinities.</p>
<b>Targeted mentoring and networking programs</b>		
<p>Formal and informal networks made up of powerful men</p> <p>Family responsibilities that leave women with little time to build professional networks</p> <p>Fewer women in powerful positions, resulting in fewer mentors for junior women</p>	<p>Mentorship programs that match senior employees with junior employees</p> <p>Formal sponsorship programs for men and women</p> <p>Female-run professional networks</p> <p>Monitoring to measure effectiveness of mentorship and networking programs</p>	<p><a href="#">Sydney Water</a> pairs younger employees with senior staff.</p> <p>The <a href="#">Tirana Water Utility</a> will set up formal mentoring and leadership programs for its female and male employees.</p> <p><a href="#">Ernst and Young</a> supports mentoring, sponsorship, and networking opportunities for female employees.</p> <p>The <a href="#">Women in Power Sector Network</a> in South Asia is a forum that aims to promote and diversify female practitioners' opportunities in the power and energy sector.</p>

BARRIERS	PROMISING APPROACHES	EXAMPLES
<b>Targeted mentoring and networking programs (Continued)</b>		
		<p>The <a href="#">African Water Association</a> fosters networks of women professionals in the water and sanitation sectors.</p> <p>The <a href="#">Women for Water Partnership</a> is a platform that unites female leadership in more than 130 low- and middle-income economies.</p> <p><a href="#">IEEE Women in Engineering</a> is a global network promoting women engineers and scientists with the aim of facilitating recruitment and retention of women in technical disciplines globally.</p>
<b>Enhanced female leadership</b>		
<p>“Leaky” talent pipeline, meaning that women are left behind and do not make it to top positions</p> <p>Historical male domination in the sector</p> <p>Gendered stereotypes that associate leadership with “male” qualities</p> <p>Female leaders being held to a higher standard</p>	<p>Succession plans that are inclusive of women</p> <p>Transparent promotion process and promotion criteria</p> <p>Performance systems that identify talented women to be promoted</p> <p>Targets for gender composition in leadership positions</p> <p>Incentive systems for women to aspire to a career in the organization</p> <p>Awards to recognize female leadership in the field</p>	<p>The <a href="#">United Water Supply Company of Georgia</a> provides women-only training to potential leaders; it has incentive systems to promote talented women.</p> <p>The <a href="#">Peter Cullen Water and Environment Trust</a> offers a transformational program to women in water leadership.</p> <p><a href="#">Water Corporation, Australia</a>, has stretch targets for women in management and reports on progress monthly.</p> <p>In Egypt, a <a href="#">World Bank-supported program</a> revised promotion procedures to ensure equal access to management positions.</p> <p>The <a href="#">Prishtina Regional Water Company</a> is reviewing its HR processes to foment more transparent promotion processes.</p> <p>The International Water Association <a href="#">Women in Water Award</a> acknowledges female leadership.</p> <p>The <a href="#">Tirana Water Utility, Prishtina Water Company, and Brasov Water Company</a> plan to implement systematic procedures to identify top talent and ensure women and men are represented at every level.</p> <p>The <a href="#">Solomon Islands Water Authority</a> plans to raise existing quotas for women in senior management from 30 to 40 percent.</p>

**NOTE**

<sup>14</sup> A study involving more than 3,000 engineers found that compared with male respondents, women were less likely to report that they get the

same access to formal and informal networking opportunities as male colleagues (67 percent versus 84 percent; Williams et al. 2016).



## THE WAY FORWARD

**W**ater and sanitation utilities play a critical role in providing communities with clean and safe water and safely managed sanitation, as well as helping ensure environmental, economic, and social sustainability. Utilities in various parts of the world face numerous challenges, such as deteriorating infrastructure, an aging workforce, increasing mandates, and competing priorities within the communities they serve. Advancing gender diversity of the water sector workforce can help expand the talent pool and strengthen various metrics of utility companies' performances. Equally important, the water sector offers opportunities for women in the forms of generating substantial incomes, improving water infrastructure to foster socioeconomic development, and providing role models for the young women of the future. However, in most economies, the water sector is male-dominated and imposes barriers to women's equal participation. Moreover, staffing issues related to gender are often overlooked. This concluding chapter outlines sectorwide and utility-specific initiatives to increase the inclusion of women as water professionals in the sector.

**Staffing and gender diversity are important yet underexplored areas for water and sanitation service providers.** Women make up half of the world's population; in many economies, they account for a significant share of graduates and in some economies, a fair share of graduating engineers or skilled technicians. The fact that their representation in the sector remains limited presents an untapped opportunity. Strengthening and diversifying the workforce can help utilities face the numerous challenges that lie ahead. Evidence indicates that diversity and inclusion can lead to better financial performance, expanded skill sets, better decision making, and improved service delivery and customer satisfaction. Keeping women away is inefficient, especially for a sector faced with financial constraints, an aging workforce, and growing pressures to deliver services for all. Through findings from the World Bank Utility Survey interviews, and focus group discussions with staff around the world, and through other secondary sources, this report provides the sector with evidence on the gaps between opportunities for women and men and points to a number of barriers that female professionals in the sector face. The report also presents the reader with promising approaches and examples of inclusion, drawing on experiences from water, energy, transport, and other sectors.

**Women's limited representation in the sector cannot be explained by the lack of candidates alone.** This study sheds light on the reasons women do not choose careers or enter employment in the water sector, and it also highlights the reasons behind them leaving the sector or not advancing in their careers at the same pace as men. The study finds that women face a wide variety of barriers at different stages of their career cycles, which leads to high rates of attrition. Many of the challenges are embedded in gender norms and stereotypes associated with science, technology, engineering, and mathematics (STEM) fields, but there are other factors at play—factors the organizations can control. Gender bias in the hiring process, whether implicit or explicit, precludes women from being recruited in water companies. Once hired, this study reveals various forms of discrimination that women face in the workplace—work demands that conflict with their family responsibilities, risk of sexual harassment, and facilities and amenities that do not cater to their needs—all of which decrease women's job satisfaction and may lead them to leave the sector.

**Not all barriers to women's employment in the water sector are the same in all water utilities.** The literature and findings of this study show that legal, institutional, political, social, and cultural considerations vary across economies and that these affect the roles that women are expected to play in the water sector. These considerations

are, therefore, important to understand before determining what gender diversity measures are appropriate and relevant for the given context. Moreover, water-managing bodies are diverse in managerial structure and autonomy—public or private—governing environment, population served, company size, skill level, and age composition of their staff. Utilities face unique challenges in different contexts and realities. These need to be considered when designing measures to address gender diversity at the utility level.

## CREATING A GENDER INCLUSIVE WORKPLACE ENVIRONMENT AT UTILITY LEVEL

**The employee career cycle offers a framework through which to explore challenges and entry points to gender diversity.** This report examined the barriers and bottlenecks that women face in the water sector along the different steps of the employee career cycle (see figure 1.3). These same steps, however, offer opportunities that utilities can tap into to diversify and strengthen their workforce.

**There are many strategies a utility can adopt to diversify its workforce.** To increase the supply of women in the sector, utilities can connect with potential female candidates early on in their education through outreach program with schools and universities, internships, and scholarships. As explored in chapter 2, connecting with secondary school-aged girls or college students and piquing their interests in water sector jobs at such an early stage can increase the likelihood of attracting them to the sector as they move into the career decision phase of their lives. Chapter 4 also showed that having a flexible and supportive culture will help encourage women to join the water sector by removing the stigmas associated with it being a male-dominated sector. As the water sector makes steps toward attracting women, human resources recruiting practices need to be redesigned to reduce implicit and explicit gender biases (see chapter 3). Companies can also set gender diversity targets and quotas as a way to increase the share of women in different occupations and trades and leadership positions in water utilities. Such measures can take the form of policies or strategies that mandate utilitywide concerted actions.

**To fix the leaky pipeline of women professionals in water, once women are hired, additional efforts need to be taken to ensure that they remain in the sector.** One key to retention is ensuring that organizations set deliberate and intentional goals of creating diverse,



flexible, and welcoming work environments. Training and mentorship, as described in chapter 5, are other important ingredients to the retention and career advancement of women. Successful mentorship is a key element to succession planning within an organization. Additionally, clear steps to advancement and organized succession planning will contribute to the ability to retain a diverse talent pool because transparent procedures reduce the likelihood of being overlooked for a promotion or other discriminatory actions.

**One size doesn't fit all; just as challenges across countries and utilities vary, so should the interventions.** A growing number of utilities in low- and middle-income countries, such as Belarus, Burkina Faso, Egypt, Lebanon, Malawi, Solomon Islands, Tajikistan, and Tanzania have designed measures to increase women's access to and participation in employment opportunities. These utilities focused on the

different aspects of employee life cycle; some addressed the challenges stemming from the low supply of female candidates and thus focused on attraction and inclusive recruitment strategies; others aimed at improving retention and promotion, expanding technical and leadership training opportunities for women, or revising utility policies and procedures to be more female-friendly (box 6.1).

## Steps to Consider

**Expanding the talent pool and diversifying the workforce is a process, which takes time and commitment to achieve results.** Utilities face different needs and challenges, some of which can be addressed by a more effective HR management. Starting a dialogue on staffing and diversity is an important first step in the process. At this early stage, asking questions about institutional challenges and issues

### BOX 6.1: RECENT WORLD BANK-SUPPORTED PROJECTS THAT AIM TO ENHANCE GENDER DIVERSITY IN WATER UTILITIES

- With the support of the Dushanbe Water Supply and Wastewater Project, Tajikistan's Dushanbe Vodokanal water and sanitation utility (DVK) plans to implement several measures to attract and recruit young women, particularly for technical roles. Although the utility already has an internship program, gender-disaggregated data on interns and interns that turn into employees will be collected. Quotas for female interns will also be established. Additionally, the utility will launch outreach and recruitment programs among selected universities and technical schools to attract female candidates (World Bank 2017f).
- Tanzania's Sustainable Rural Water Supply and Sanitation Program seeks to encourage the participation of female students in relevant education and training opportunities offered by the country's Water Institute by allocating a larger percentage of student loans subsidized by the project to female students (World Bank 2017b).
- Egypt's Sustainable Rural Sanitation Services Program-for-Results recommended a set of actions to water and sanitation utilities from selected regions to promote equal recruitment and promotion practices. Utilities are encouraged to review their human resources policies, promotion procedures, and guidelines for selecting top management positions (World Bank 2018b).
- To improve women's opportunities for career advancement, water and sanitation utilities in countries such as Belarus, Burkina Faso, Lebanon, Malawi, Solomon Islands, and Tajikistan have designed measures to increase their access to and participation in training opportunities (World Bank 2017a, 2018a, 2018c, 2019b, 2019e, 2019f). With the support of the Additional Financing for the Greater Beirut Water Supply Project, the Beirut Mount Lebanon Water Establishment utility will support targeted trainings for female employees in order to build their technical competencies and skills in areas such as public speaking and management (World Bank 2018c). Through internal communication campaigns, Burkina Faso's ministry in charge of water and sanitation, whose Burkina Faso's urban water utility (Office National de l'Eau et de l'Assainissement [ONEA]) is part of, will encourage female staff to apply to scholarships for a variety of training opportunities and education programs (World Bank 2018a). These scholarships will be sponsored by the Water Supply and Sanitation Program-for-Results.
- With the support of the Urban Water Supply and Sanitation Sector Project, the Solomon Islands Water Authority will raise existing quotas for women in senior management from 30 to 40 percent and encourage the participation of female staff in capacity-building opportunities (World Bank 2019e). This utility has been one of the pioneering companies in the Solomon Islands to adopt and implement the Waka Mere Commitment of Action, an initiative that aims to promote gender equality in the workplace (IFC n.d.). The utility will continue to strengthen policies and practices adopted in line with this initiative, including by using monitoring to foster equal opportunities.

*Note: Project appraisal documents of lending projects available at <http://projects.worldbank.org/>.*

## BOX 6.2: SEX-DISAGGREGATED DATA TO MONITOR PROGRESS

Economies that have employment data on the sector level can use this information to diagnose gaps in employment between men and women and to monitor progress. To illustrate this point, data from UNIDO (2018) show that in 2014, for all economies with available data, 21.46 percent of employees in service industries

were women. This percentage is nearly 24.8 percent for the water utilities but with lower paid jobs and with lower wage premiums (42 percent compared with the rest of industries). These sources of information help monitor with disaggregated data the status of labor conditions for all types of utilities.

may provide some ideas for where the issues lie and if/how HR management plays a role. Managers can use the Utility Turnaround Framework to guide them through the process (see figure 1.5). Key elements of success, as reported by staff interviewed for this study, is securing senior management's buy-in and having a champion within the company.

**The next step involves conducting an assessment** to identify barriers and opportunities related to diversity and inclusion. Questions can be broader (for example, include persons with disabilities, or the LGBTQ community) or limited to gender. A short HR survey can provide a benchmark on diversity numbers, policies, and procedures and can reveal the gaps and challenges that should be addressed. Although quantitative data can identify challenges, a qualitative assessment (for example, through focus group discussions or key informant interviews) can be useful in explaining causes of barriers and in suggesting strategies for how to break them.

**The findings gleaned from the gender assessment can form the basis for identifying relevant areas of interventions.** As this report shows, various actions and interventions have been applied by water and sanitation utilities to promote a more diverse workforce and a more inclusive work environment. The scope of interventions depends on the appetite of the utility and on available resources. A summary of the core set of actions covered in the previous chapters that address key challenges of women attraction, selection, retention, and advancement in the water sector is presented in appendix a.

**During implementation, setting targets and monitoring progress will support effective actions and promote accountability (box 6.2).** Utilities can set targets on gender diversity and inclusion and define short-term and mid-term milestones that are appropriate for their particular circumstances and cultural context. The baseline information established during the assessment should be collected on a regular basis to help monitor progress, identify challenges, and recognize success.

## AN ENABLING ENVIRONMENT AT THE NATIONAL AND SECTORAL LEVEL

**Although a utility can take many measures to increase the supply of female candidates and create a diverse and welcoming work environment, some measures are beyond their control.** Some measures to enable women to engage in male-dominated professions need to be coupled with initiatives at the national level, which encourage employers to not only open spaces for women in the workplace but also cultivate a work culture that fosters equitable gender composition across sector levels and roles. For example, national strategies on gender equality, nondiscrimination, and removing legal barriers on employment can contribute to creating an enabling environment for women in the water sector. Uruguay's water utility is an example of an institution that benefits from national-level inclusive strategies, in this case a Gender Equality Model (box 6.3).

**By introducing and strengthening gender-informed policies, such as laws, regulations, strategies, or incentives, the overall conditions of professionals, particularly female professionals, can be improved.** As discussed in this report, the work environment and culture in a water utility does not always accommodate both genders. National policies that protect women's employment by enforcing laws that stipulate maternity protection are vital to secure women workers rights and social protection. For instance, the length of maternity leave in Israel is covered under the 2016 Employment of Women Law, which sets paid maternity leave at 105 days. The 2015 Labor Code of Iraq guarantees workers returning from maternity leave the same position or a similar position with the same wages, and Decree 18/2017 of Timor-Leste introduces maternity benefits as part of its social security system.

### BOX 6.3: IMPLEMENTING URUGUAY'S GENDER EQUALITY MODEL AT THE OSE WATER UTILITY

In 2008, Uruguay's Obras Sanitarias del Estado (OSE) water and sanitation utility was one of the pioneering public agencies to pilot and adopt Uruguay's Gender Equality Model, a tool developed to help companies incorporate gender equality in their organizational management processes. Organizations, audited annually, can receive a gender equality certification. As part of this effort, OSE created a Gender Committee responsible for implementing the model in the utility. The company examined their recruitment advertisements and ensured that they adopted inclusive terms and interview panels that followed a set of guidelines to prevent discrimination in hiring processes. It created a protocol for handling sexual harassment cases. A series of workshops was designed to sensitize employees on gender issues, including sexual harassment, and the legal department was further trained on addressing sexual harassment and discrimination at work. To foster a family-

friendly work environment, OSE built a day-care center in its main facility and plans to build additional day cares in other locations. It also built new and improved lactation rooms and equipped them with breast pumps. Breastfeeding mothers can work part-time during the first year after giving birth, and women whose children are born with disabilities have longer maternity leave. Some of the measures adopted by the utility are required by law; other measures—for example, providing flexible work schedules for breastfeeding mothers—go beyond what is legally required. The utility is in the process of adopting additional measures to improve gender equality. Thanks to OSE's efforts, the percentage of women in the utility increased from 21 percent in 2007 to 32 percent in 2019.

Sources: Interview with water utility employees, Uruguay, April, 30, 2019; Estoyanoff Portela et al. 2017. *Modelo de Equidad de Género: Edición 2016*.

**Additionally, policies are critical in this case to protect women's rights, needs, and safety.** Policies such as sexual harassment legislation that protect women in the workforce are important to ensure not only their safety but also that the appropriate mechanisms are in place to report and hold employees and employers accountable. For instance, Loi No. 2016/007 of Cameroon established criminal penalties for sexual harassment in employment, and Loi No. 1/05 of 2009 of Burundi introduced civil remedies for sexual harassment in employment.

**Job restrictions on women's employment can also limit women's work in water utilities.** The recent labor code of Tajikistan specifically allows women to work in jobs deemed hazardous, arduous, or morally inappropriate in

the same way as men. As seen in this report, flexible work is important to promote retention of women in the water sector. In the past two years, Turkey introduced part-time work options for parents until their children's compulsory schooling begins.

**Policies can also stipulate female professionals' access to training.** In Belarus, several resolutions and instructions provided by the Ministry of Labor and Social Protection and the Ministry of Housing regulate the national training system in water services. In Malawi, a National Gender Policy set in motion a series of activities and initiatives toward greater gender diversity at the Lilongwe Water Board (box 6.4).

### BOX 6.4: IMPLEMENTING MALAWI'S GENDER POLICY IN THE LILONGWE WATER BOARD

In 2015, the government of Malawi adopted a National Gender Policy, which highlighted the importance of including vulnerable groups in the planning, designing, and management of natural resources, environment, and climate change interventions. In alignment with this strategy, the Lilongwe Water Board has committed to improving women's participation and career advancement opportunities. The utility has established a Women in Water chapter, which has a mentorship program for women and girls in schools and gives voice to female staff. It also plans to provide scholarships for female students seeking to go into science, technology, engineering, and mathematics

(STEM) fields. Finally, the utility will establish gender quotas with the goal of reaching a recruitment ratio of 40 to 60 for either sex. Although women are still underrepresented in technical and managerial positions within the utility, visible progress has been made in recent years. The number of female employees almost doubled between 2015 and 2019; in that same time period, the number of female managers increased by 87 percent. Going forward, the utility is planning to extend its outreach programs to persons with disabilities and other excluded groups.

Source: IWA 2019.

**Such national level policies can foster gender equality in the water workforce.** Moreover, increasing the representation of women in water and sanitation not only helps the utility, as explored in this report, but it also presents governments with an opportunity to narrow gender gaps in employment through water sector jobs. A shared focus on closing the gender gap through gender-sensitive policies, funding, and industry intervention can yield the positive dividends needed to achieve countries' priorities such as decreasing poverty and boosting shared prosperity.

## CONCLUDING REMARKS

**The proportion of female professionals in water utilities has grown steadily in the past few years, as recent International Benchmarking Network for Water and Sanitation Utilities (IBNET) data show.** However, even with the increases in women's participation in the water workforce, women face myriad barriers and challenges

in entering and succeeding as professionals in the water sector. Additionally, many water companies are facing the impending loss of a retiring workforce and growing shortage of skilled water professionals, highlighting the importance for the industry to focus on deliberate diversity inclusion in outreach and recruitment efforts.

**Therefore, more needs to be done to address the lack of gender diversity in water utilities, which require multilevel solutions at the national, sectoral, and utility levels.** The report shows that gendered barriers are usually subtle, often the result of gender stereotypes and gendered occupational cultures. Differences in the status of women, especially regarding career choices, the division of household responsibilities, and differences in paid and unpaid labor are still ingrained in many societies and continue to play a powerful role in shaping the career development of men and women. Efforts in this area need to be multifaceted and multisectoral and address the underlying causes of the leaky pipeline of women in the water sector.



The background of the page is a vibrant blue color with a textured, rippling effect that resembles water. Numerous small, clear bubbles are scattered throughout, particularly concentrated in the lower right quadrant, adding a dynamic and fresh feel to the design.

# Appendix

## APPENDIX A:

### INTERVENTIONS FOR UTILITIES TO INCREASE WOMEN’S ATTRACTION, RECRUITMENT, RETENTION, AND ADVANCEMENT

CHALLENGES IDENTIFIED	APPROACHES TO CONSIDER
<b>Attraction</b>	
Stereotypes indicating that work in water utilities is not suited to women	<ul style="list-style-type: none"> <li>• Utilities carry out outreach programs and campaigns to schools and colleges to encourage young women to consider and pursue careers at the utility Bring Your Daughter to Work Day.</li> <li>• Utilities launch communication campaigns.</li> </ul> <p>→ Collaborative efforts between utilities and district-level schools and colleges</p>
Girls lack of role models of female water professionals	<ul style="list-style-type: none"> <li>• Female representatives present the work of the organization to schools and the community.</li> <li>• Female field operators serve as role models to the community.</li> </ul> <p>→ Collaborative efforts between utilities and district-level schools and colleges</p>
Low level of female graduates in technical fields	<ul style="list-style-type: none"> <li>• Scholarships are offered to girls and women to train in water-related fields.</li> <li>• International exchange programs are organized.</li> </ul> <p>→ Collaborative efforts between utilities and district-level schools and colleges</p>
<b>Recruitment</b>	
Lack of school-to-work pathways and transitions	<ul style="list-style-type: none"> <li>• School-to-work transition training is set up.</li> <li>• Internships have balanced participation from men and women.</li> <li>• Job training and placement programs are offered.</li> <li>• Vacation work programs involve men and women.</li> <li>• Apprenticeships target men and women.</li> </ul> <p>→ Collaborative efforts between utilities and both colleges and universities</p>
Lack of information about water utility internships, entry-level jobs, etc.	<ul style="list-style-type: none"> <li>• Utilities recruit female engineers directly from universities.</li> <li>• Utilities participate in career fairs.</li> </ul> <p>→ Collaborative efforts between utilities and both colleges and universities</p>
Gender bias in the hiring process	<ul style="list-style-type: none"> <li>• Companies need to overhaul their recruitment processes to include the following recommendations:             <ul style="list-style-type: none"> <li>- Use specific language analysis tools to translate job descriptions to be more gender neutral.</li> <li>- Remove all gender and age markers on application documents.</li> <li>- Include tasks in the interview process that mimic on-the-job tasks, including written tests.</li> <li>- Use structured interviews in the recruitment process to avoid informal discussions that could lead to interviewees to divulge information such as married status and number of children.</li> <li>- Ensure women and men sit on the interview panel.</li> <li>- Provide hiring committee training on implicit gender bias.</li> </ul> </li> </ul> <p>→ Collaborative efforts between utilities and industry leaders</p>

Continued

<p>No incentives to hire women</p>	<ul style="list-style-type: none"> <li>• Targets encourage utilities to expand diversity.</li> <li>• An action plan aims at meeting gender targets.</li> <li>• Companies offer awards to hire women.</li> <li>• Awards recognize male or female champions who advance women employed in the sector.</li> <li>• Measures track diversity.</li> </ul> <p>→ Collaborative efforts between utilities and industry leaders</p>
<b>Retention</b>	
<p>Work–life balance that disadvantages women</p>	<ul style="list-style-type: none"> <li>• Office work environments should offer the following:             <ul style="list-style-type: none"> <li>- Return-to-work arrangements for returning parents, such as phased return schedules, whereby hours of work are progressively increased until a final schedule is reached</li> <li>- Flexible work arrangements, including options for part-time employment, teleworking, flexible core hours, and job-sharing arrangements</li> <li>- Guidelines for managers on ensuring flexible work arrangements</li> </ul> </li> <li>• Water utility facilities and sites should provide the following:             <ul style="list-style-type: none"> <li>- Childcare options, such as onsite childcare facilities or monetary assistance for childcare arrangements</li> <li>- Onsite lactation rooms</li> <li>- Policies allowing nursing mothers break times to nurse or pump</li> </ul> </li> </ul>
<p>Inadequate policies to protect women and families</p>	<ul style="list-style-type: none"> <li>• Laws prevent or penalize employers for firing pregnant women.</li> <li>• Laws require employers to guarantee employees returning from maternity leave the same or an equivalent position.</li> <li>• Maternity and paternity leave policies are developed.</li> <li>• Family leave policies are created.</li> <li>• Communication plans raise awareness on policies, laws, and arrangements among employees.</li> </ul>
<p>Unsupportive work environment for female employees</p>	<ul style="list-style-type: none"> <li>• Companies train managers in how to promote a supportive, family-friendly, and respectful work culture.</li> <li>• The management endorses gender diversity strategy or action plan.</li> <li>• A gender or inclusion steering committee is created.</li> <li>• Utilities designate a gender focal point.</li> <li>• Budget allocation relates to gender.</li> <li>• Regular staff gender audits are conducted.</li> <li>• Workshops tackle unconscious bias in the workplace, including ones for managers.</li> <li>• Training on gender sensitization reaches all employees.</li> <li>• Performance measures of managers include a gender equality indicator.</li> <li>• Resources are dedicated for the implementation of gender measures.</li> <li>• Reward systems for all employees incentivize a gender-friendly work environment.</li> </ul>



Continued

<p>Workplace facilities that do not cater to the needs of women</p>	<ul style="list-style-type: none"> <li>• Water utility facilities and sites should provide the following:               <ul style="list-style-type: none"> <li>- Separate sanitation facilities for men and women</li> <li>- Sanitation facilities for women with provisions for menstrual hygiene management (including locks, bins, and handwashing facilities)</li> <li>- Health and safety standards that consider the needs of men and women</li> <li>- Onsite lactation rooms</li> <li>- Policies allowing nursing mothers break times to nurse or pump</li> </ul> </li> </ul>
<p>Sexual harassment in the workplace</p>	<ul style="list-style-type: none"> <li>• Companies institute codes of conducts for all employees related to sexual harassment.</li> <li>• Utilities establish clear antisexual harassment policies designed to protect employees.</li> <li>• Executives establish safe and fair procedures for reporting and responding to sexual harassment.</li> <li>• Training on sexual harassment reaches all employees.</li> <li>• Safe transportation and field-site accommodation are provided for female operators.</li> </ul>
<p>Gender wage gaps</p>	<ul style="list-style-type: none"> <li>• Companies conduct regular salary gap analyses.</li> <li>• Auditors consider bonuses and other types of pay benefits beyond salaries.</li> <li>• Utilities ensure equal pay for equivalent work policies.</li> </ul>
<p><b>Advancement</b></p>	
<p>Lack of career development and advancement for women</p>	<ul style="list-style-type: none"> <li>• Utilities conduct training on gender equality and personal bias.</li> <li>• Succession plans are inclusive of women.</li> <li>• Transparency surrounds the promotion process and promotion criteria.</li> <li>• Performance systems identify talented women to be promoted.</li> <li>• Targets aim for gender composition in leadership positions.</li> <li>• Incentive systems encourage women to aspire to a career in the organization.</li> <li>• Awards recognize female leadership in the field.</li> </ul>
<p>Lack of training opportunities for women</p>	<ul style="list-style-type: none"> <li>• Equal access to training enhances technical, leadership, management, and negotiation skills.</li> <li>• Training tackles gender stereotypes, such as mandatory training on a gender-friendly work environment and gender sensitization for staff and management.</li> <li>• Training is delivered at times and in locations accessible to both men and women.</li> </ul>
<p>No mentoring and networking opportunities for women</p>	<ul style="list-style-type: none"> <li>• Mentorship programs match senior employees with junior employees.</li> <li>• Formal sponsorship programs are offered for men and women.</li> <li>• Female-run professional networks are encouraged.</li> <li>• Monitoring measures the effectiveness of mentorship and networking programs.</li> </ul>

## APPENDIX B:

### WORLD BANK UTILITY SURVEY RESPONDENTS

No.	Name of water utility	Country or economy	No. employees
1	American Samoa Power Authority	American Samoa	387
2	Empresa de Aguas e Saneamento do Bie	Angola	81
3	Empresa de Águas e Saneamento do Kwanzo-Norte-E.P.	Angola	40
4	Empresa Provincial de Águas e Saneamento da Huíla	Angola	290
5	Empresa de Aguas e Saneamento de Malanje-EP	Angola	67
6	Empresa de Aguas e Saneamento do Uige	Angola	114
7	RUE Oshmiany Utilities	Belarus	400
8	Municipal Production Enterprise Pinskvodokanal	Belarus	354
9	Société Nationale des Eaux du Bénin	Bénin	851
10	Office National de l'Eau et de l'Assainissement	Burkina Faso	903
11	Battambang Provincial Water Supply Unit	Cambodia	152
12	Kampong Cham Provincial Water Supply Unit	Cambodia	51
13	Kampong Thom Provincial Water Supply Unit	Cambodia	33
14	Kampot Provincial Water Supply Unit	Cambodia	60
15	Mondulkiri Provincial Water Supply Unit	Cambodia	15
16	Preah Sihanouk Provincial Water Supply Unit	Cambodia	84
17	Pursat Provincial Water Supply Unit	Cambodia	38
18	Siemreap Provincial Sewerage and Wastewater Treatment Plant	Cambodia	57
19	Stong Water Supply Unit, Kampong Thom province	Cambodia	14
20	Stung Treng Provincial Water Supply Unit	Cambodia	22
21	Anshan City Water Supply Co. Ltd.	China	2,619
22	Fushun City Water Supply (Group) Co. Ltd.	China	1,530
23	Fuxin City Water Co. Ltd.	China	1,379
24	Gaizhou Water Affairs Co. Ltd.	China	220
25	Shenyang Water Group Co. Ltd.	China	5,389
26	Sharkeya Water	Egypt, Arab Rep.	6,642
27	Water Authority of Fiji	Fiji	1,106
28	Régie Eau Nord Caraïbes et Régie Assainissement Nord Caraïbes	Guadeloupe	82
29	Société Polynésienne des Eaux	French Polynesia	191
30	PUB Kiribati	Kiribati	134
31	Lilongwe Water Board	Malawi	446
32	Northern Region Water Board	Malawi	534

33	Central Region Water Board	Malawi	339
34	South Region Water Board	Malawi	498
35	Majuro WSC, RMI	Marshall Islands	46
36	Department of Transportation and Infrastructure, Kosrae State Government	Micronesia, Fed. Sts.	25
37	Chuuk Public Utilities Corporation, FSM	Micronesia, Fed. Sts.	102
38	Nauru Utilities Corporation	Nauru	173
39	Caledonienne des Eaux	New Caledonia	219
40	Eda Ranu	Papua New Guinea	325
41	Water PNG Ltd.	Papua New Guinea	354
42	Maynilad Water Services Inc.	Philippines	2,213
43	Compania APA Brasov SA	Romania	871
44	PUC Vodovod i Kanalizacija (water works company)	Serbia	195
45	PUC Belgrade waterworks and sewerage	Serbia	1,960
46	Solomon Islands Water Utilities	Solomon Islands	148
47	Tonga Water Board	Tonga	99
48	Tunisie Office National de l'Assainissement	Tunisia	3,396
49	Société Nationale d'Exploitation et de Distribution des Eaux	Tunisia	6,413
50	Administración de las Obras Sanitarias del Estado	Uruguay	4,058
51	Department of Water, Vanuatu	Vanuatu	48
52	Unelo Vanuatu	Vanuatu	12
53	Eau et Electricité de Wallis et Futuna	Wallis and Futuna Islands	40
54	Costal Municipality Water Utility	West Bank and Gaza	205
55	Gaza	West Bank and Gaza	1,460
56	Jenin Municipality	West Bank and Gaza	45
57	Jericho Municipality	West Bank and Gaza	53
58	Joint Service Council for Services–North West Jenin	West Bank and Gaza	27
59	Joint Service Council for Services, Planning and Development–South East Nablus	West Bank and Gaza	25
60	Khan Younis	West Bank and Gaza	130
61	Nablus Municipality	West Bank and Gaza	334
62	Tubas JSC	West Bank and Gaza	25
63	Tulkarem Municipality	West Bank and Gaza	114
64	Water Supply and Sewerage Authority Bethlehem	West Bank and Gaza	110

## APPENDIX C: METHODOLOGY

To better understand the state of female workers in water and sanitation utilities, a survey of utilities was conducted from December 2018 to June 2019. Questionnaires were sent to the human resource departments of 97 water and sanitation utilities over this period, and completed questionnaires were received by email from 64 utilities spanning 28 countries and economies (see appendix b for the full list). As noted in the report, the survey is not representative of all utilities. The study team distributed the survey to water and sanitation utilities through regional World Bank staff. This snowball sampling method has its known limitations: utilities self-selected their participation in the survey, the sample is nonrandom, and the number of potential respondents was largely limited to those who work with the World Bank.

The survey contains four modules that were completed by an HR representative of the utility. The first module focuses on general HR information, including number of employees, recruitment, promotions, turnover, and salary information, all broken down by gender and position. The second module asks for information on employees participating in training programs, broken down by training type, gender, and position. The third module is on HR policies, including flexible work arrangements; maternity, paternity, and family leave; and gender-sensitive recruitment, compensation, and training policies. The final module is on the general work environment, including availability and quality of restrooms, childcare facilities, and lactation rooms.

Some regions are overrepresented in terms of the number of surveys for which responses were received. For instance, completed questionnaires were received from 11 utilities in

West Bank and Gaza, 10 utilities in Cambodia, 5 utilities in both Angola and China, and 4 utilities in Malawi. The final statistics shown in figures in the report are unweighted utility averages, as indicated in the figure notes.

Acknowledging that the survey sample is not statistically representative of all utilities in a given country, or all countries in the world, possible survey results were presented alongside information from alternative data sources (for instance, figure 1.1). In another instance, survey data were combined with data from the International Benchmarking Network for Water and Sanitation Utilities when variables overlapped (as in figure 1.2).

To complement the water and sanitation utility survey, qualitative research was conducted in utilities in Belarus, Egypt, and Malawi. Separate focus group discussions (FGDs) were conducted with male and female staff in managerial, technical, and nontechnical positions. Eight FGDs were conducted at two utilities in Belarus, nine FGDs were conducted at one utility in Malawi, and four FGDs were conducted at one utility in Egypt. In addition, 18 key informant interviews (eight in Belarus, four in Malawi, and six in Egypt) were conducted to complement the FGDs.

The study also drew on interviews with 13 male and female utility employees in managerial and technical positions and 10 interviews with representatives of water organizations and academic institutions, including Suez Water, the International Water Association, IHE Delft Institute for Water Education, the Water Youth Network, WaterAid, and the Pacific Water and Wastewater Association.



A close-up photograph of blue water with numerous small, clear bubbles and ripples. The water is a vibrant blue color, and the bubbles are scattered throughout, creating a textured, dynamic background.

# References

## REFERENCES


- Abuladze, Nino. 2014. "Gender Equality in Water Sector in Georgia: Challenges and Perspectives" (accessed June 14, 2019), <https://www.scribd.com/document/208317700/Gender-Equality-in-Water-Sector-in-Georgia-Challenges-and-Perspectives>.
- Adams, Renee B., and Daniel Ferreira. 2009. "Women in the Boardroom and Their Impact on Governance and Performance." *Journal of Financial Economics* 94 (2): 291–309.
- ADB (Asian Development Bank). 2014. "Tomorrow's Women Water Leaders in Lao PDR" (accessed June 14, 2019), <https://www.adb.org/results/tomorrows-women-water-leaders-lao-pdr>.
- . 2016. "Power Line Maintenance Means Jobs for Women in Bhutan." <https://www.adb.org/news/videos/power-line-maintenance-means-jobs-women-bhutan>.
- . n.d. "Georgia: Urban Services Improvement Investment Program." <https://www.adb.org/projects/43405-023/main#project-overview>.
- African Water Association. 2019. "Femmes Professionnelles de l'Eau et de l'Assainissement: Le Réseau du Bénin Vient de Naître." Programme des Femmes Professionnelle (accessed June 1, 2019), <https://www.afwa-hq.org/index.php/fr/menu-presentation-femmes/item/677-femmes-professionnelles-de-l-eau-et-de-l-assainissement-le-reseau-du-benin-vient-de-naitre>.
- Ali, Muhammad, Isabel Metz, and Carol T. Kulik. 2015. "Retaining a Diverse Workforce: The Impact of Gender-Focused Human Resource Management." *Human Resource Management Journal* 25 (4): 580–99.
- Australian Public Service Commission. n.d. "06 Diversity" In *State of the Service Report 2011–12* (accessed June 11, 2019), <https://www.apsc.gov.au/06-diversity>.
- Barta, Thomas, Markus Kleiner, and Tilo Neumann. 2012. "Is There a Payoff from Top-Team Diversity?" McKinsey & Company.
- Barwon Water. n.d. *Annual Report 2017–2018*. [https://www.parliament.vic.gov.au/file\\_uploads/2017-18\\_Barwon\\_Water\\_Annual\\_Report\\_website\\_mR68dY8t.pdf](https://www.parliament.vic.gov.au/file_uploads/2017-18_Barwon_Water_Annual_Report_website_mR68dY8t.pdf).
- Castillo, Rafael, Mateo Grazi, and Ezequiel Tacsir. 2014. *Women in Science and Technology: What Does the Literature Say?* Washington, DC: Inter-American Development Bank.
- Catalyst. 2013. "Why Diversity Matters." Catalyst.
- Corbett, Christianne, and Catherine Hill. 2015. *Solving the Equation: The Variables for Women's Success in Engineering and Computing*. Washington, DC: AAUW.
- Das, Maitreyi Bordia. 2017. *The Rising Tide: A New Look at Water and Gender*. Washington, DC: World Bank.
- Deloitte. 2013. *Waiter, Is That Inclusion in My Soup? A New Recipe to Improve Business Performance*. Sydney: Deloitte.
- Department of Environment, Land, Water and Planning, Victoria State Government. 2015. *Annual Report 2015*. [https://www.parliament.vic.gov.au/file\\_uploads/DELWP\\_Annual\\_Report\\_2014-15\\_TWVz3pYy.pdf](https://www.parliament.vic.gov.au/file_uploads/DELWP_Annual_Report_2014-15_TWVz3pYy.pdf).
- Di Miceli, Alexandre, and Angela Donaggio. 2018. *Women in Business Leadership Boost ESG Performance: Existing Body of Evidence Makes Compelling Case*. Washington, DC: International Finance Corporation.
- Díaz-García, Cristina, Angela González-Moreno, and Francisco Jose Sáez-Martínez. 2013. "Gender Diversity within R&D Teams: Its Impact on Radicalness of Innovation." *Innovation: Management, Policy & Practice* 15 (2).
- Eagly, Alice H., and Linda L. Carli. 2007. "Women and the Labyrinth of Leadership." *Harvard Business Review* September: 62–71.
- EDGE (Economic Dividends for Gender Equality). n.d. "EDGE: The Global Business Certification Standard for Gender Equality" (accessed June 3, 2019), <http://edge-cert.org/certifications/>.
- Elmuti, Dean, Heather Jia, and Henry H. Davis. 2009. "Challenges Faced by Women in Leadership Positions." *Journal of Leadership Education* 8 (2): 167–87.
- Ernst and Young. 2016. *Talent at the Table: Women in Power Utilities: EY Global Utilities Center*. Ernst and Young. [https://www.ey.com/en\\_gl/women-power-utilities](https://www.ey.com/en_gl/women-power-utilities).
- Estoyanoff Portela, Natalia, Luciana Martínez, Nohelia Millán, and Noelia Ojeda Rodríguez. 2017. *Modelo de Equidad de Género: Edición 2016*. Instituto Nacional de Las Mujeres, Ministerio de Desarrollo Social. <https://docplayer.es/60707748-Autoras-natalia-estoyanoff-portela-luciana-martinez-nohelia-millan-noelia-ojeda-rodriguez-y-marisa-ortega-diseno-agustina-larrosa.html>.
- Folkman, Zenger. 2015. "A Study in Leadership: Women Do It Better Than Men." In *Real Women, Real Leaders: Surviving and Succeeding in the Business World*, edited by Kathleen Hurley and Priscilla Shumway, 165–69. Hoboken, NJ: John Wiley & Sons.
- Fouad, Nadya A., Wen-Hsin Chang, Min Wan, and Romila Singh. 2017. "Women's Reasons for Leaving the Engineering Field." *Frontiers in Psychology*.
- Fouad, Nadya, and Romila Singh. 2011. *Stemming the Tide: Why Women Leave Engineering*. Milwaukee: University of Wisconsin–Milwaukee.
- Freight Transport Association. 2018. "Shifting Perceptions in a Changing Landscape." <https://fta.co.uk/media/press-releases/2018/june/shifting-perceptions-in-a-changing-landscape>.
- Gaucher, Danielle, Justin Friesen, and Aaron C. Kay. 2011. "Evidence That Gendered Wording in Job Advertisements Exists and Sustains Gender Inequality." *Journal of Personality and Social Psychology* 101 (1): 109–28.
- Giannelos, Ioannis, Geert Smit, Rianne Lakamp, Ana-Rosa Gonzalez Martinez, Lucia Meija Dorantes, Claus Doll, Jasper Tanis, Paul Vroonhof, and Federico Perciaccante. 2018. *Business Case to Increase Female Employment in Transport: Final Report*. European Commission.
- Glass, Jennifer L., Sharon Sassler, Yael Levitte, and Katherine N. Michelmore. 2013. "What's So Special About STEM? A Comparison of Women's Retention in STEM and Professional Occupations." *Social Forces* 92 (2): 723–56.
- Government of Uganda Ministry of Water and Environment. n.d. *Water and Sanitation Sub-sector Gender Strategy (2010–15)*. Government of Uganda Ministry of Water and Environment. <http://extwprlegs1.fao.org/docs/pdf/uga152829.pdf>.

- Granada, Isabel, Anne-Marjorie Urban, Andrea Monje, Paola Ortiz, Daniel Perez, Lauren Montes, and Alejandra Caldo. 2016. *The Relationship Between Gender and Transport*. Inter-American Development Bank.
- GWA (Gender and Water Alliance). 2011. *Gender Scan Methodology*. GWA.
- Harvard Business Review. 2013. "Women in the Workplace: A Research Roundup." *Harvard Business Review* September: 86–89.
- Hashimi, Nadia, Asta Olesen, and Jennifer Solotaroff. 2012. "Increasing Women's Employment Opportunities through TVET." Afghanistan Gender Mainstreaming Implementation Note Series 4, Washington, DC: World Bank.
- Hewlett, Sylvia Ann, Melinda Marshall, and Laura Sherbin. 2013. "How Diversity Can Drive Innovation." *Harvard Business Review* December.
- Hunt, Vivien, Prince Sara, Dixon-Freyre Sundiatu, and Yee Lareina. 2018. "Delivering through Diversity." McKinsey & Company.
- Ibarra, Herminia, Robin J. Ely, and Deborah Kolb. 2013. "Women Rising: The Unseen Barriers." *Harvard Business Review* September.
- IEEE Women in Engineering. "About IEEE WIE." <https://wie.ieee.org/aboutieeewie/>.
- IFC (International Finance Corporation). 2013. *Investing in Women's Employment: Good for Business, Good for Development*. Washington, DC: IFC.
- . 2016. *SheWorks: Putting Gender-Smart Commitments into Practice*. Washington, DC: IFC.
- . 2017. *Tackling Childcare: The Business Case for Employer-Supported Childcare*. Washington, DC: IFC.
- . 2018a. *Making Progress: Solomon Island Businesses Advance Gender Equality*. Washington, DC: IFC.
- . 2018b. *Unlocking Opportunities for Women and Business: A Toolkit of Actions and Strategies for Oil, Gas and Mining Companies*. Washington, DC: IFC.
- . 2019. *Gender Equality, Infrastructure and PPPs: A Primer*. Washington, DC: IFC.
- . n.d. "Waka Mere Commitment to Action" (accessed June 13, 2019), [https://www.ifc.org/wps/wcm/connect/region\\_ext\\_content/ifc\\_external\\_corporate\\_site/east+asia+and+the+pacific/news/postcards-wakamere-cta](https://www.ifc.org/wps/wcm/connect/region_ext_content/ifc_external_corporate_site/east+asia+and+the+pacific/news/postcards-wakamere-cta).
- ILO (International Labour Organization). 2019a. "Building Skills and Promoting Employment for Jordan's Female Plumbers" (accessed June 14, 2019), [https://www.ilo.org/beirut/media-centre/fs/WCMS\\_676547/lang-en/index.htm](https://www.ilo.org/beirut/media-centre/fs/WCMS_676547/lang-en/index.htm).
- . 2019b. *A Quantum Leap for Gender Equality: For a Better Future of Work for All*. Geneva: ILO.
- . 2019c. *Women in Business and Management: The Business Case for Change*. Geneva: ILO.
- IRENA (International Renewable Energy Agency). 2019. *Renewable Energy: A Gender Perspective*. Abu Dhabi: IRENA.
- Itaipu Binacional. n.d. "Gender Equality." <https://www.itaipu.gov.br/en/social-responsibility/gender-equality>.
- IWA (International Water Association). 2014. *An Avoidable Crisis: WASH Human Resource Capacity Gaps in 15 Developing Economies*. London: IWA.
- . 2016. *The Untapped Resource: Gender and Diversity in the Water Workforce*. London: IWA.
- . 2019. *Diversity in the Water Workforce: Ensuring Gender Equity and Inclusion*. Webinar presentation, July 2. <https://iwa-network.org/learn/diversity-in-the-water-workforce-ensuring-gender-equality-and-inclusion-2/>.
- . n.d. "IWA Women in Water Award" (accessed June 1, 2019), <http://iwa-network.org/iwa-women-water-award/>.
- Jalal, Imrana. 2014. *Women, Water and Leadership*. Manila: Asian Development Bank.
- Jalal, Imrana. 2017. *Wanted: More Women in Stem! Promoting Gender Equality at the Water Authority of Fiji*. Asian Development Bank.
- Kane, Joseph, and Adie Tomer. 2018. *Renewing the Water Workforce: Improving Water Infrastructure and Creating a Pipeline to Opportunity*. Metropolitan Policy Program at Brookings.
- McKinsey & Company. 2011. "Unlocking the Full Potential of Women in the U.S. Economy." McKinsey & Company.
- Melbourne Water Corp. 2017. *Melbourne Water Corporate Plan 2017/18 to 2021/2022*. Melbourne: Melbourne Water Corp. <https://www.melbournewater.com.au/sites/default/files/2017-11/MelbourneWater-CorporatePlan-2017.pdf>.
- Nieves Rico, Maria. 1998. "Women in Water-Related Processes in Latin America: Current Situation and Research and Policy Proposals." *International Journal of Water Resources Development* 14 (4): 461–71.
- OECD (Organisation for Economic Cooperation and Development). 2009. *Fostering Diversity in the Public Service*. OECD.
- . 2015. "Why a Push for Gender Equality Makes Sound Economic Sense" (accessed May 2019), <http://www.oecd.org/forum/oecdyearbook/push-gender-equality-economic-sense.htm>.
- . 2016. "Background Report: Conference on Improving Women's Access to Leadership." Paris: OECD.
- Peter Cullen Water and Environment Trust. n.d. "Women in Water Leadership Program" (accessed June 1, 2019), <http://www.petercullenwater.org.au/women-in-water/>.
- Reynolds, Alison, and David Lewis. 2017. "Teams Solve Problems Faster When They're More Cognitively Diverse." *Harvard Business Review* March 30.
- Seron, Carroll, Susan S. Silbey, Erin Cech, and Brian Rubineau. 2015. "Persistence Is Cultural: Professional Socialization and the Reproduction of Sex Segregation." *Work and Occupations* 43 (2): 178–214.
- Shapiro, Jenessa, and Amy Williams. 2012. "The Role of Stereotype Threats in Undermining Girls' and Women's Performance and Interest in STEM Fields." *Sex Roles* 66 (3–4): 175–83.



- Shaw, Elyse, Ariane Hegewisch, and Cynthia Hess. 2018. "Sexual Harassment and Assault at Work: Understanding the Costs." Briefing Paper, Institute for Women's Policy Research.
- Silbey, Susan S. 2016. "Why Do So Many Women Who Study Engineering Leave the Field?" *Harvard Business Review* August 23.
- Society of Women Engineers. 2019. "Scholarships." <https://swe.org/scholarships/>.
- Soppe, Gerard, Nils Janson, and Scarlett Piantini. 2018. "Water Utility Turnaround Framework." Washington, DC: World Bank.
- Stoet, Gijsbert, and David C. Geary. 2018. "The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education." *Psychological Science*.
- Suez India. n.d. "Acting for Equal Opportunities and Diversity." <https://www.suez.in/en-in/who-we-are/our-commitments/act-for-equal-opportunities-and-diversity>.
- Suez Water. n.d. "Our Differences Make Us Stronger." <https://www.mysuezwater.com/careers/diversity-and-inclusion>.
- Sydney Water. n.d. *Annual Report 2015–2016*. Sydney: Sydney Water. [http://alternate.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdk1/~edisp/dd\\_095614.pdf](http://alternate.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdk1/~edisp/dd_095614.pdf).
- Thompson, Kate, Kathleen O'Dell, Sameera Syed, Hannah Kemp, and Eva Vazquez. 2017. "Thirsty for Change: The Untapped Potential of Women in Urban Water Management." *Deloitte Review* 20: 154–167.
- Tortajada, Cecilia. 2003. "Professional Women and Water Management: Case Study from Morocco." *Water International* 28 (4): 532–39.
- Turnbull, Peter. 2013. *Promoting the Employment of Women in the Transport Sector—Obstacles and Policy Options*. Geneva: International Labour Office.
- UN (United Nations). 2018. *The Sustainable Development Goals Report 2018*. New York: UN.
- UN DESA (United Nations Department of Economic and Social Affairs). 2018. "Around 2.5 Billion More People Will Be Living in Cities by 2050, Projects New UN Report" (accessed May 28, 2019), <https://www.un.org/development/desa/en/news/population/2018-world-urbanization-prospects.html>.
- UN Women. 2015. *Progress of the World's Women 2015–2016: Transforming Economies, Realizing Rights*. New York: UN Women.
- UNDP (United Nations Development Programme). 2018. *Human Development Indices and Indicators: 2018 Statistical Update*. New York: UNDP. [http://hdr.undp.org/sites/default/files/2018\\_human\\_development\\_statistical\\_update.pdf](http://hdr.undp.org/sites/default/files/2018_human_development_statistical_update.pdf).
- UNESCO. 2015. "Unleashing the Potential: Transforming Technical and Vocational Education and Training."
- . 2016. *UNESCO Strategy for Technical and Vocational Education and Training (TVET) (2016–2021)*. Paris: UNESCO.
- . 2017. *Cracking the Code: Girls' and Women's Education in Science, Technology, Engineering and Mathematics (STEM)*. Paris: UNESCO.
- . 2019. "Promoting Gender Equality in STEM-Related TVET" (accessed May 31, 2019), [https://unevoc.unesco.org/go.php?q=Gender\\_STEM\\_Workshop](https://unevoc.unesco.org/go.php?q=Gender_STEM_Workshop).
- UNIDO. 2018. *World Statistics on Mining and Utilities*. Vienna: UNIDO.
- Unitywater. 2016. "Unitywater Is an Endorsed Employer of Women." <https://www.unitywater.com/newsroom/Unitywater-is-an-endorsed-employer-of-women>.
- USAID. 2016a. "EKEDP Nigeria: Bring Your Daughter to Work Day" (accessed June 14, 2019), <https://www.usaid.gov/energy/engendering-utilities/ekedp-nigeria-bring-daughter-work-day>.
- . 2016b. *Engendering Utilities: Improving Gender Diversity in Power Sector Utilities*. Washington, DC: USAID.
- . 2016c. "EVN Macedonia: Bring Your Daughter to Work Day" (accessed June 14, 2019), <https://www.usaid.gov/energy/engendering-utilities/evn-macedonia-bring-daughters-work-day>.
- . 2018. *Increasing Women's Participation in the Power Sector through Human Resources Interventions: A Best Practices Framework*. Washington, DC: USAID.
- . n.d.a. "Energy Sector Internship Program." [https://pdf.usaid.gov/pdf\\_docs/PA00KWT8.pdf](https://pdf.usaid.gov/pdf_docs/PA00KWT8.pdf).
- . n.d.b. "Engendering Utilities Partner Profile: EDCO, Jordan." [https://www.usaid.gov/sites/default/files/documents/1865/Engendering-Utilities\\_EDCO\\_Jordan.pdf](https://www.usaid.gov/sites/default/files/documents/1865/Engendering-Utilities_EDCO_Jordan.pdf).
- . n.d.c. "Engendering Utilities Partner Profile: EVN Macedonia, Macedonia." [https://www.usaid.gov/sites/default/files/documents/1865/Engendering-Utilities\\_EVN-Macedonia.pdf](https://www.usaid.gov/sites/default/files/documents/1865/Engendering-Utilities_EVN-Macedonia.pdf).
- van der Vleuten, Maaïke, Stephanie Steinmetz, and Herman van de Werfhorst. 2019. "Gender Norms and STEM: The Importance of Friends for Stopping Leakage from the STEM Pipeline." *Educational Research and Evaluation: An International Journal on Theory and Practice*.
- WAF (Water Authority of Fiji). 2017. "Nakasi Women's Group Declared 'Water Champions.'" Fiji Sun, May 5. <https://fijisun.com.fj/2017/05/05/nakasi-womens-group-declared-water-champions/>.
- WHO (World Health Organization) and UNICEF. 2017. *Progress on Drinking Water, Sanitation and Hygiene: 2017 Update and SDG Baselines*. Geneva: WHO.
- WHO (World Health Organization) and UN-Water (United Nations Water). 2014. *UN-Water Global Analysis and Assessment of Sanitation and Drinking-Water (GLAAS) 2014 Report: Investing in Water and Sanitation: Increasing Access, Reducing Inequalities*. Geneva: WHO.
- Williams, Joan C., Su Li, Roberta Rincon, and Peter Finn. 2016. "Climate Control: Gender and Racial Bias in Engineering?" *Society of Women Engineers*.
- Wodon, Quentin T., and Bénédicte de la Brière. 2018. *Unrealized Potential: The High Cost of Gender Inequality in Earnings*. Washington, DC: World Bank.
- Women for Water Partnership. n.d. "Who We Are." <https://www.womenforwater.org/who-we-are.html>.

- World Bank. 2002. *Integrating Gender into the World Bank's Work: A Strategy for Action*. Washington, DC: World Bank.
- . 2015. *World Bank Group Gender Strategy (FY16-23): Gender Equality, Poverty Reduction and Inclusive Growth*. Washington, DC: World Bank Group.
- . 2016. "FAQ—World Bank Group Support for Water and Sanitation Solutions" (accessed May 10, 2019), <http://www.worldbank.org/en/topic/water/brief/working-with-public-private-sectors-to-increase-water-sanitation-access>.
- . 2017a. *Malawi—Lilongwe Water and Sanitation Project*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/419171513998119839/pdf/MALAWI-PAD-12012017.pdf>.
- . 2017b. *Tanzania—Sustainable Rural Water and Sanitation Program*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/583191530243092019/pdf/TANZANIA-SANITATION-PAD-06072018.pdf>.
- . 2018a. *Burkina Faso—Water Supply and Sanitation Program-for-Results Project*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/779181530243080428/pdf/BURKINA-FASO-P4R-NEWPAD-06072018.pdf>.
- . 2018b. *Egypt, Arab Republic of—Sustainable Rural Sanitation Services Program-for-Results: Additional Financing: Addenda to Environmental and Social Systems*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/135161531931204734/pdf/128590-ESSA-P166597-PUBLIC.pdf>.
- . 2018c. *Lebanon—Greater Beirut Water Supply Project: Additional Financing*. Washington, DC: World Bank. <http://documents.worldbank.org/curated/en/237431529292650160/pdf/FINAL-project-paper-P165711-clean-May-29-2018-05292018.pdf>.
- . 2018d. *Women, Business and the Law*. Washington, DC: World Bank Group. <https://wbl.worldbank.org/>.
- . 2019a. "Adolescent Girls Initiative" (accessed June 5, 2019), <http://www.worldbank.org/en/programs/adolescent-girls-initiative>.
- . 2019b. *Belarus—Utility Efficiency and Quality Improvement Project*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/167851560823385771/pdf/Belarus-Utility-Efficiency-and-Quality-Improvement-Project.pdf>.
- . 2019c. *Evaluating the Potential of Container-Based Sanitation*. Washington, DC: World Bank Group.
- . 2019d. *Pathways to Power: South Asia Region Baseline Assessment for Women Engineers in the Power Sector*. Washington, DC: World Bank.
- . 2019e. *Solomon Islands—Urban Water Supply and Sanitation Sector Project*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/448081556809858039/pdf/Solomon-Islands-Urban-Water-Supply-and-Sanitation-Sector-Project.pdf>.
- . 2019f. *Tajikistan—Dushanbe Water Supply and Wastewater Project*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/533381560045646099/pdf/Tajikistan-Dushanbe-Water-Supply-and-Wastewater-Project.pdf>.
- . 2019g. *Women in Utilities: A Driving Force for Workforce Modernization*. Washington, DC: World Bank. [http://www.danube-water-program.org/media/News/15190-WB\\_Measuring\\_Gender\\_Equality\\_FINAL.pdf](http://www.danube-water-program.org/media/News/15190-WB_Measuring_Gender_Equality_FINAL.pdf).———. Forthcoming. *Women in STEM: Promoting Women's Employment in Infrastructure Sectors*. Washington, DC: World Bank.
- WSAA (Water Services Association of Australia) & Diversity Partners. 2017. *Tapping the Power of Inclusion and Diversity in Urban Water*. Sydney: WSAA. <https://www.wsaa.asn.au/sites/default/files/publication/download/Tapping%20the%20Power%20of%20Diversity.pdf>.
- ZA Bursaries. 2019. "Department of Water & Sanitation Bursary South Africa 2019–2020" (accessed June 14, 2019), <http://www.zabursaries.co.za/government-bursaries-south-africa/department-of-water-sanitation-bursary/>.
- Zhang, Anna, and Liwen Hou. 2012. "The Romance of Working Together: Benefits of Gender Diversity on Group Performance in China." *Human Relations* 65 (11): 1487–508.



## IMAGE CREDITS

**Front cover:**  
Everything I Do / Shutterstock  
StudioSmart / Shutterstock

**Page viii:**  
TonyV3112 / Shutterstock

**Page x, xvi, 14, and 67:**  
Tasokwa Kakota / World Bank

**Page xiii, 20, and 59:**  
Lakshman Nadaraja / World Bank

**Page xv:**  
Asian Development Bank/Flickr

**Page 10 and 48:**  
Cathie Wissa / World Bank

**Page 17:**  
Rebecca Gilsdorf / World Bank

**Page 25:**  
FotoAndalucia / Shutterstock

**Page 28:**  
Tran Thi Hoa / World Bank

**Page 39:**  
SeventyFour / iStock

**Page 42:**  
Alexander Danilenko / World Bank

**Page 52:**  
Scott Wallace / World Bank



SKU W19046