Safe, Clean, Affordable Water for All – Inclusive, Diverse, Equitable, & Able Leaders for Water - 2024 Workshop and Survey

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1. Executive Summary

In 2023, WaterUCI launched the IDEAL project. The project objective is to support initiatives that promote the education, training, career placement, and professional development of underrepresented groups in California's water sector to ensure improved social and environmental practices. The goal of IDEAL is to enable greater diversity and inclusiveness in the water sector along with finding strategies to work together to ensure that the demographics in the water sector reflect California's diverse population. In the opening phase of the project, WaterUCI hosted the IDEAL workshop on May 23, 2024, which focused on distilling lessons from diverse, equitable, and inclusive (DEI) activities currently underway in the state's water sector. Aligned with the workshop, WaterUCI developed and circulated a preliminary survey that aimed to identify common DEI successes, shortcomings, and challenges across the water industry. This report summarizes the findings of the workshop discussions and survey results. We emphasize the following key strategies: (1) eliminating hiring biases to ensure fair and inclusive recruitment practices, (2) cultivating an organizational culture that supports sustaining DEI, (3) organizing community outreach events to increase community awareness of water industry careers, (4) collaborating with stakeholders to offer internships and mentorship programs to promote job qualification for the youth in underrepresented communities, and (5) highlighting the importance of repository building and open data at the regional level to share the best practices and innovative water workforce development strategies.

2. Background

2.1 Introduction

The water sector's ability to provide safe, clean, and affordable water to its inhabitants is vital in California. To meet this goal, the state has put forth substantial efforts. Policymakers have paid considerable attention to the need for new physical water infrastructure to address water supply stressors. This includes new storage and delivery systems, drinking water treatment plants, and innovative supply alternatives such as desalination, effluent use, and rainwater harvesting projects. California officials have earmarked over $8 billion to modernize water infrastructure and management. The historic three-year, $5.2 billion investment in water systems enacted in 2021-22 has led to the implementation of several vital initiatives. These include emergency drought response, improved conservation, and the storage of million acre-feet of water from rainwater harvesting. By 2030, the state aims to reuse 800,000 acre-feet of water per year, enabling safer and more efficient use of wastewater. In addition, by capturing stormwater and desalinating ocean water to replenish groundwater, the state plans to also provide an additional 500,000 acre-feet of water by 2030 (California Natural Resource Agency, 2022).

However, far less attention has been given to the expertise and personnel required to manage and implement those projects and initiatives. This is an urgent policy challenge for

three reasons. First, our water industry workforce is aging, and many will soon retire.[1] Second, despite the variety of jobs available in the water sector – spanning engineering, data science, and human resources, many college-age individuals know little about the industry, its needs, or the opportunities it offers. Third, the water sector, historically, has not been inclusive, diverse, or reflective of the population it serves. This latter characteristic is one of many that impede amicable, democratic, and equitable resolution of disputes over water management. In short, more attention must be given to the "hidden" infrastructure behind the physical foundation – the people needed to manage this vast water provision system.

A diverse, equitable, and inclusive (DEI) workforce in the water industry is crucial for guaranteeing the initiatives' success and delivering safe water to all Californians. The state's water challenges do not affect everyone equally: socio-economically disadvantaged regions and underrepresented groups are disproportionately affected by poor and under-maintained infrastructure. Vulnerable communities served by water agencies that lack the resources to acquire the talent to build, manage, and oversee needed infrastructure are more likely at risk of exposure to hazardous water pollutants and water supply deficits caused by drought and climate change. The water industry must address the needs and concerns of those communities. By involving these communities in decision-making and infrastructure planning, the sector can make meaningful progress toward implementing more equitable and responsive water management practices. This inclusive approach instills hope and optimism for a future with improved water quality and accessibility. Fostering an environment in the water workforce that values diverse perspectives and experiences allows the sector to address the complex and evolving water management and distribution challenges more adequately. When practiced by all stakeholders, this inclusive approach can lead to innovative solutions and greater resilience in the face of future environmental and social changes facing the water sector.

2.2 Overview of IDEAL Project - *Project Goals and Objectives*

Water UCI's IDEAL[2] Project focuses on initiatives "[promoting] the education, training, career placement, and professional development of underrepresented groups in California's water sector" (Water UCI, 2024).[3] The project is managed by Dr. David Feldman, Dr.

[1] The average water sector employee is 48 years old, and over the next 5 to 10 years, nearly a third to half of them will reach retirement age (US EPA, 2020, p. 3; Dickerson and Butler, 2018).

[2] IDEALstands for Inclusive, Diverse, Equitable, and Able Leaders.

[3]Water UCI is an interdisciplinary center in the School of Ecology at the University of California Irvine (UCI). It aims to address complex issues impacting the planet's water and related resources by promoting collaboration across various disciplines and schools at UCI and other universities, research centers, public agencies, and industries. Water UCI broadly defines its mission in 4 categories:

- Research- funding and conducting research, with emphasis on the convergence of disciplines within science around research topics.
- Education/outreach-outreach activities to elementary, college, and university students, educators, professionals, agencies, and the public.
- Workforce Development-facilitating awareness, preparation, and transition into the water workforce.
- Policy- providing policy support for the overall governance of water, including legislation,

Changdeok Gim[4], and a group of researchers. In October 2023, the California Budget Act of 2023 awarded Water UCI, via the University of California Office of the President (UCOP), one million dollars for the IDEAL project to increase awareness, and provide education, training, and career placement for underrepresented groups (UCI School of Social Ecology, 2023). Intended as a program that can be replicated by other universities, the goal of the IDEAL project is to enable greater diversity and inclusiveness in the water sector, arguably, the state's most important resource sector – one that is becoming increasingly threatened by climate change and growing demands, yet is critical to our economy, jobs, environment, and quality of life.

The IDEAL Project predicates that for underrepresented groups to gain water equity and have their water needs properly met, an inclusive workforce must create novel solutions that engage all interested parties. One way to ensure that the needs of underrepresented communities are addressed is by hiring individuals from these communities. After all, employees from diverse backgrounds and groups will be more inclined to recognize inequities, encourage community engagement, and prioritize solutions to meet the needs of these vulnerable communities. In serving as a hub for knowledge acquisition, the IDEAL project asks questions about existing recruitment strategies and analyzes whether they align with these goals. The overarching goal of the project is to develop this workforce ecosystem as a national model for how to enhance the skill sets of water industry personnel as well as recruit a diverse workforce and governing structure to address current water issues.

Specifically, the project will support:

1) ***partnering with select water agencies, two- and four-year colleges, and advocates for under-represented groups in California to develop a workforce training pipeline program*** **(*e.g., internship network)*** to afford exposure to water industry career opportunities and preparation for urgent water management challenges. The latter includes adapting to climate change, managing contaminants of emerging concern, acquiring innovative financing for infrastructure, and engaging with diverse stakeholders and members of the public.

2) ***co-developing education and training modules with the above partners on regionally and topically-focused water resources issues*** aimed at underrepresented groups and designed to equip potential future leaders to serve in managerial and operational roles within water agencies, regulatory bodies, and non-governmental advocacy groups.

3) ***conducting annual career fairs, in virtual as well as face-to-face formats, that facilitate exchanges of information on career opportunities and provide Q&A forums directed at college-age, mid-career, and non-traditional student populations.*** By hosting water agencies, government regulators, private sector employers, and non-profit water advocacy groups, our objective is to establish a statewide workforce training ecosystem to generate internship and permanent career opportunities with applicants and match them with employers.

management, and public usage.

[4] Dr. David Feldman is the Director of Water UCI and Dr. Changdeok Gim is the Associate Director of Water UCI.

2.3 Defining the Water Sector and Water Workforce

The vast landscape of water sectors, which is understood as a socio-technical system, can be divided into two key management areas: the physical infrastructure surrounding the natural water resource (H_2O) and the social organizations responsible for managing it. First, infrastructure management is traditionally divided into water quality and water resource management systems to manage non-fungible resources. Water quality management ensures drinking water safety and regulatory compliance for public health and ecological sustainability. Ensuring water quality requires conducting thorough monitoring, treatment, and inspections according to established standards. This enables safe water distribution to consumers while aiding its release into ecological systems. In particular, screening, coagulation, sedimentation, filtration, and disinfection are included in the management of water systems for treatment to remove debris, particles, contaminants, and pathogens. On the one hand, during testing and regulatory compliance, compliance departments of agencies and research laboratories collaborate to oversee and assess the quality before the treated water is distributed to the wholesalers and delivered to the industrial complex. On the other hand, the water sector encompasses the security of water quantity management, focusing on water supply, distribution, recycling, flood control, and adaptive management responding to fluctuating water inflow. Water source protection constitutes a critical sector of management to ensure water availability.

Secondly, the physical life cycle of water extraction, treatment, transmission, and distribution requires institutional management and a broad workforce of human resources. For instance, a skilled workforce is essential across various water sectors to address the diverse needs arising from different spectrums of engineering, technological management, legal frameworks, and public administration in quality and resource management. This includes water resource managers who ensure sustainable water use, civil and environmental engineers who oversee water infrastructure projects, and water treatment operators who manage the treatment and distribution of safe drinking water. Furthermore, the water sector's workforce spans various operational roles in wastewater management, flood management, and drainage systems. Employees in the diverse water sector are composed of varying operational and managerial occupations of plumbers, technicians, pipelayers, and other water-related construction workers. For further communication and authentication of knowledge and data, experts, including environmental scientists, hydrologists, lab technicians, geotechnical engineers, climate scientists, and chemists, assess the impact of water use on ecosystems. They then enforce specific water quality criteria to ensure the sustainability of water resources. Aligned with these technological operations and scientific management activities, lawyers and policy analysts devise and institutionalize legal, social, and organizational strategies and propose regulatory governance for effective water management.

2.4 Defining Diversity, Equity, and Inclusion (DEI)

'Diversity' Diversity refers to the compositional differences among people in a work unit (Roberson, 2019, p.70). According to social psychological theory and social categorization theory, individuals naturally tend to categorize groups to simplify their experience (Allport et al.,

1954; Turner, 1987; Triandis et al., 1994). In workplaces, a group's decisions may be influenced by specific attributes of other employees regardless of whether or not those attributes are task-relevant. This may lead to group distinctions that influence group functioning (Mullen, 1983). There are two distinct categories of diversity attributes. Diversity attributes, at the surface level, are those more observable demographic characteristics, such as race, ethnicity, age, gender, sexual orientation, and nationality, that are composed of inborn or natural characteristics (Stangor et al., 1992). At a deeper level, diversity attributes are categorized based on less discernible psychological traits, such as personality, attitudes, values, cultures, and past life experience. Demographic and psychological diversity further created functional background diversity based on task-related requirements, such as educational background, professional roles, organizational tenure, and veteran status (Williams & O'Reilly, 1998; Roberson, 2019).

'Equity' Equity refers to consistent, systematic, fair, just, and impartial treatment of all individuals, including those in underserved communities who have been denied such treatment (US OPM, 2021). "A commitment to equity means an environment where everyone has the opportunity and access to realize their full potential, and no one is disadvantaged because of their group identity or other socially determined circumstance" (Water Environment Federation, n.d.). Workplace equity creates a positive environment that fosters mutual respect, trust, support, and collaboration, ultimately contributing to social justice and the betterment of the industry as a whole (Kiradoo, 2022). A supportive workplace boosts productivity and increases employee retention rates, which is especially important given the current state of the water workforce. In addition, creating an equitable environment in the workplace attracts a diverse pool of employees who can add varied perspectives that drive innovation and enhance productivity in the sector.

'Inclusion' Social identification theory argues that how individuals identify themselves into a social group depends on the social component of their shared connection and personal identity (Brewer & Gardner, 1996). Individuals choose to socially identify themselves into a group when their desire to assimilate and a countervailing need for individuation are satisfied (Brewer, 1991). The need for individuals to assimilate into a group while maintaining their individuality tends to cause conflict among the members (Brewer, 1991). Intergroup identification fosters in-group favoritism and out-group discrimination, enhancing innovative and creative performance through self-motivation at work (Tajfel & Turner, 2004). From this perspective, inclusion describes the extent to which an employee feels valued as a group member based on their experiences of treatment that fulfill their needs for belonging and individuality (Shore et al., 2011).

Summary The three components of DEI are interconnected. At an organizational level, *Diversity* focuses on valuing differences and increasing the opportunities for underrepresented groups. Increased diversity reduces unfair and illegal bias and discrimination. It encompasses various personal characteristics, educational backgrounds, expertise, life experiences, and cultural backgrounds (Water Environment Federation, n.d.). *Inclusion* emphasizes approaches to meeting diversity goals by embracing all group members' perspectives, voices, values, and needs. It helps foster a sense of belonging, respect, and support by allowing the water sector to

improve its diversity (Ferdman & Deane, 2013; Williams et al., 2023). *Equity* focuses on whether the types and degree of support are sufficient to address underrepresented groups' needs. Diversity, Equity, and Inclusion mutually promote one another (Ferdman & Sagiv, 2012).

2.5 The Importance of DEI in the Water Sector

Providing safe and clean water comprises a global water equity challenge. Over 4 billion people cannot access safe drinking water (Biswas & Tortajada, 2019). The Global Burden of Disease study reported that 1.8 million people died in 2015 from water pollution-related diseases (Biswas & Tortajada, 2019). “Inadequate sanitation, limited water supplies, and poor hygiene can contribute to the spread of diarrheal and infectious diseases. Most public health problems, mainly in crises, occur due to inadequate [water quality and quantity]” (Ostadtaghizadeh et al., 2022).

Under-resourced communities are disproportionately influenced by the challenges of water inequity. In California, more than 320 water systems in the state provide water that does not meet water quality standards for 1 million residents. Two-thirds of failing water systems, exceeding maximum levels for substances harmful to human life, are in under-resourced, underprivileged communities (California State Water Board, 2024, p. iii). Severely disadvantaged communities in California have a 3.44% greater likelihood of water quality violations[5]. “Higher percentages of Hispanic, Black, and Asian/Pacific Islander residents [in LA County] and a greater degree of redlining and residential segregation were associated with higher [water] contamination risk” (Berberian et al., 2023, p. 1191). High nitrate community water systems (CWSs) served nearly twice as many Hispanic residents on average compared to low nitrate CWSs (Schaider et al., 2019, p. 7). Additionally, CWSs that served the highest proportion of Hispanic residents (top quartile) exceeded 5 mg/L nitrate nearly three times as often as CWSs serving the lowest proportion of Hispanic residents (Schaider et al., 2019, p. 7). Women experience more health problems when exposed to unsafe drinking water than men. One study found that “women experienced higher rates of bladder cancer when exposed to arsenic, trihalomethanes, and chlorine in drinking water…. and higher rates of breast cancer… [when exposed]... to arsenic, trichloroethylene, and disinfection byproducts in drinking water” (De Guzman et al., 2023, p. 1). Arsenic exposure also led to anemia and adverse pregnancy outcomes. Water-related skin diseases were more prevalent in women and associated with increased levels of psychosocial stress and social isolation (De Guzman et al., 2023).

The lack of diversity in the water sector contributes to why underserved communities are disproportionately affected by water issues. There is a significant benefit to having different perspectives on issues plaguing the water sector. To truly understand the needs of a community, organizations must directly involve their members in problem-solving and decision-making, as they have the best insight into identifying the specific, underlying issues in their

[5] The degree of likelihood of an underrepresented groups facing health-related water quality violations:

- Low-income and minority groups (Hispanics and non-white) have a 1.77% greater likelihood of health-related quality violations
- Tribal Communities have a 2% greater likelihood of violating the Total Coliform Rule (which focuses on reducing fecal and microbial matter in public drinking water systems (Acquah & Allaire, 2023)

communities. By centering voices in underserved communities and incorporating their knowledge, organizations can accurately address current challenges within the water industry. These include water inequality and sanitation, aging infrastructure, and adverse climate change impacts on water supply. Moreover, water professionals must be available to lend their expertise where necessary to respond to these concerns. Individuals from underrepresented communities have established strong relationships with its members. This form of credibility promotes trust between water professionals and the community. To best serve communities dealing with the most harmful water supply and quality circumstances, there must be an active discussion where all community members can voice concerns and actively participate in decision-making. Notably, it is equally important to recognize the difference between being invited to the conversation and being allowed to participate. By involving people from those communities in the water sector, perspectives and solutions can be expanded, allowing different approaches to solve unprecedented water issues.

2.6 Overall Workforce-related DEI Issues in the Water Sector

With many seasoned employees nearing retirement, the need for new talent in the sector has become increasingly urgent. Yet, this shortage also presents an opportunity to reevaluate traditional recruitment practices and adopt more inclusive strategies to make the workforce reflect the diversity of the communities the industry serves. Historically, the sector has struggled to attract individuals from underrepresented backgrounds due to their limited public awareness, systemic barriers to entry, and persistent gender disparities. By addressing these challenges, the water industry has a chance to not only fill critical positions but also foster a more innovative and resilient workforce for the future.

2.6.1 Issue: Low Hiring Rate

Several factors contribute to the low hiring rate in the sector. First, there is an information asymmetry between the employers and the prospective employees. Due to a lack of public awareness surrounding the industry, it is difficult for employers to find prospective employees while increasing the diversity of their workforce. Students in under-represented groups who are in the process of exiting high school are not adequately informed about the opportunities in the water sector, hence less likely to be interested or encouraged to pursue water-related careers. In discussions on water management, a common misconception is that the underrepresentation of racial minority groups in water dialogues stems from a lack of interest. However, this perspective overlooks structural factors such as social boundaries, power dynamics, and disparities in access to information (Williams et al., 2023). This same pattern may also contribute to underrepresentation in the water workforce, where low hiring rates may not be due to an individual's lack of interest in this industry but rather the absence of career paths for underrepresented groups to be involved in water-related positions.

Secondly, there is an entry barrier for underrepresented people in the workforce. Most jobs in the water industry require a high school education and at least an additional year of training. Prospective employees will have to set aside time and resources to go through the

required technical and vocational training. Engineering or technical-related jobs in the water sector require undergraduate degrees, which necessitate a significant investment in both education and finances. Kane and Tomer (2018) reported that approximately nine mission-critical jobs in the water industry desperately need qualified employees to fill their vacant positions. However, these careers, ranging from water distribution to heavy equipment operators, are highly technical. Water agencies must hire employees with a select set of skills and experience to be qualified for those positions (Kane & Tomer, 2018). Underrepresented groups[6] who are prospective candidates with low educational attainment and fewer resources for additional training may experience entry barriers when applying for water jobs. Hence, members of underserved communities are often excluded from these positions due to the barriers to entry associated with individuals unable to afford secondary education and the lack of the necessary education pathways to enter the workforce. For instance, many young adults from underserved communities have to work multiple jobs to support their families. They often do not have the time to pursue a secondary education. Individuals from underrepresented communities are less likely to be hired or advance in a career setting compared to their white counterparts.

2.6.2 Issue: Gender Underrepresentation

Women remain underrepresented in many science-related fields, despite being fully capable of thriving in these careers. They often report being discouraged by stereotypes that perpetuate misconceptions about their abilities and the types of jobs they should or should not pursue (Kenney et al., 2012). The water industry faces a similar persistent issue: the lack of women in the water workforce. The International Water Association (2016) found that women are less likely than men to engage in fieldwork, instead working more often in onsite offices or managerial roles. Their study found that although most men and women agreed that men excel at water jobs, women in the water workforce are just as capable and determined as men when it comes to physically demanding tasks (International Water Association, 2016).

Despite increased attention to this issue, the industry has remained male-dominated. Until 2016, nearly 85% of employees in the water workforce were men, whereas women comprised only 14.9% (Kane & Tomer, 2018). The roots of this gender imbalance can be traced back decades. In the late 1970s, activists urged policymakers, planners, NGOs, and agencies to consider women's needs and roles during policymaking, planning, and implementation. In response, many water agencies established “offices of women's affairs,” but these offices were often marginalized and given limited influence, leaving women’s concerns largely ignored (Bennett et al., 2008, p. 118). This failure to follow through on early efforts to integrate women’s perspectives has contributed to the ongoing perception that water jobs, particularly fieldwork, are unsuitable for women. Without addressing these misconceptions and creating safer, more inclusive work environments, the industry risks continuing a cycle of underrepresentation. The

[6] For example, 60% of students in the bottom-income quartile continue to college versus 87% of top-income students (Means et al., 2019).

lack of gender diversity in the water workforce could ultimately lead to an inability to fully address the diverse needs of the communities the industry serves.

2.7 DEI Survey

2.7.1 Goals and Objectives

To support the IDEAL project and build on the May 2024 workshop, we developed a preliminary survey targeting a smaller, more focused sample to refine questions before a larger survey rollout in 2025. This initial survey aimed to identify common DEI challenges across the water industry and to support the development of effective strategies to address them.

2.7.2 Survey Methodology

The survey invitation was distributed via email to workshop participants before the event, with a request to share the invitation with colleagues in the water industry. A total of 26 water professionals across California completed the survey, including attendees of the IDEAL virtual workshop (n=9) and their colleagues (n=17). The survey respondents included a range of professionals, in roles spanning senior leadership, education, public affairs, human resources, and technical services, who came from a variety of organizations, such as academic institutions, municipal and regional water districts, environmental nonprofits, and specialized consultancies. The survey was developed based on an in-depth literature review that explored the challenges associated with DEI in the workforce. We identified themes highlighting essential aspects of DEI that could benefit from a survey of current water industry professionals and researchers. These topics included hiring practices, challenges in retaining a diverse workforce, career pathways for advancement, current DEI practices, collaboration opportunities among industry institutions, and specific challenges related to education and training for a representative workforce. The full survey can be found in **Appendix 9.1**.

3. DEI Workshop

3.1 Summary of Keynote Talks

3.1.1 Keynote Speaker: Jose Solorio

Jose Solorio is a highly respected leader in the state’s water sector. His actions have been instrumental through his work with government officials from state governments in Sacramento, the city of Santa Ana, and Orange County (OC). Solorio's extensive experience with the private sector and as a legislative liaison for water district clients underscores his ability to address industry challenges. As a Latino working in a historically non-diverse sector, Solorio has been actively addressing DEI issues, making him a key advocate for water sector reform.

According to Solorio, the water sector faces significant water management and distribution issues. Underserved communities, often consisting of minority populations, urgently

need a consistent supply of clean drinking water. However, the water industries serving these populations lack a diverse workforce. Diversifying the water workforce has numerous benefits for the industry and, more importantly, the communities being served. By diversifying its leadership, the water sector would be better able to ensure that resources and services are distributed equitably. However, establishing a diverse group of high-ranking individuals is difficult due to barriers to entry for minority groups seeking to join the workforce. Employers are looking for individuals with technical knowledge, specific skills, education, and experience, which may be difficult for members of underserved communities to acquire. The impact of long-standing biases, whether explicit or implicit, against specific groups or communities is significant. It decreases the likelihood of minorities being hired or promoted regardless of their experience and qualifications. As reported by Solorio, rather than outsource their DEI efforts to external companies, companies should invest more in internal resources and be held accountable for adequately implementing DEI efforts. One way to achieve this is to encourage active stakeholder engagement, as they are vital to the water sector and can assist companies in enhancing their DEI initiatives.

Commentary on Jose Solorio views

One type of bias that impedes underrepresented promotion is often referred to as the "glass ceiling,"[7] which is primarily based on the false idea that white males are more capable leaders than women or people of color. This stems from deeply ingrained stereotypes that have persisted for generations, shaping societal attitudes and perceptions. Further, Akhmouch and Claverul (2016) found that the water sector can encourage greater stakeholder involvement by considering their goals and aspirations. By strengthening relationships with stakeholders, various programs can be accomplished with proper funding, ranging from standardization training programs to engaging with underrepresented groups (U.S. Water Alliance, 2024). Additional strategies must focus on eliminating the barriers to entry associated with entering the water sector and improving the hiring and retention of individuals. The potential for these initiatives to create positive and transformative changes in the water sector is immense and will continue to grow. Moreover, the industry can work with outside organizations to create a workforce training pipeline program, develop education and training modules, and host annual career fairs. Successful programs can also provide valuable insights and best practices that can be adapted to enhance the water sector's initiatives.

3.1.2 Keynote Speaker: Susan Mas

Susan Mas is employed at Generation: NOW!, a nonprofit organization that brings "key individuals from industry and education together to design and implement educational programs that equip young people with the… experience needed to pursue careers in the 21st century" (Susan Mas, 2024). Mas has vast experience collaborating with various charter schools that prioritize providing students with exceptional education while integrating DEI. El Sol Science

[7] The term "glass ceiling" is a metaphor used to describe the invisible barrier that prevents womens and minorities from advancing to higher positions in their careers.

and Arts Academy, Samueli Academy, and TLC[8] are among the schools she has partnered with. Her extensive work with diverse educational institutions emphasizes her unwavering belief in the significance of offering high-quality education to young individuals, especially concerning career prospects in the water sector.

According to Mas, the best way to ensure DEI initiatives are correctly implemented is through comprehensive system-wide change. This should address not only the hiring and retention of individuals from diverse backgrounds but also eliminate the long-standing biases and other issues that hinder their entry and advancement in the water sector. However, to change the entire system, one must become better familiar with its inner workings and needs. For instance, labor market data aggregated from various sources establishes which positions play crucial roles in the sector. These mission-critical positions could range from calibration technicians to water and wastewater treatment plant operators, which are highly technical. Since most individuals in these positions are retirement age, organizations have been looking for new employees to replenish their workforce. Unfortunately, there is a shortage of qualified workers because of the difficulties associated with obtaining the necessary skills and experience to be deemed competent for these mission-critical positions. Therefore, if the water sector wants to function at optimal capacity, it must hire and retain individuals with diverse backgrounds compared to previous hires.

According to Mas, tackling DEI issues while acknowledging the challenges posed by the aging water workforce is crucial for ensuring equitable access to clean water. The water sector must focus on equipping young people with the vital skills, knowledge, and experiences needed to join the water workforce. A possible strategy the water sector can use to address its workforce shortage is engaging with young individuals and educating them on career opportunities in the water sector. For Mas, the solution is clear: educate young individuals about the importance of water as a resource, the water sector's crucial role for communities, and water-related career opportunities.

While internship programs expose young individuals to various facets of the water industry, it is equally important to implement K-12 capacity-building projects that nurture the development of diverse water leaders within schools (Florida Rural Water Association, n.d.). Introducing the water sector and its career opportunities to individuals early in their academic careers makes them more likely to pursue these paths. Collaboration with external organizations and public schools is vital. Forming partnerships with industry groups similar to WEEA[9] can help achieve this goal. The project is committed to developing education and training modules focusing on regionally and topically relevant water resource issues. For instance, programs targeting various educational levels, such as high school, middle school, and elementary school, can create awareness and interest in water-related issues through initiatives like ocean cleanups and school gardens. Another example is the Valley Water Internship program, which invested over one million dollars annually into a high school

[8] TLC stands for Tomorrow's Leadership Collaborative.

[9] WEEA stands for the World Energy Efficiency Association

internship program that caters to underrepresented communities. Linking water-related careers to improving their communities and society can inspire students to actively participate in transformative change that benefits themselves and those around them.

Commentary on Susan Mas views

While the IDEAL Project primarily targets college-age individuals and those older, broadening its focus to include younger individuals would increase the program's effectiveness, making it easier to achieve its goals. In addition, developing a workforce training pipeline program and promoting initiatives such as internships and career awareness programs, like the LVIC's RIASEC Program, are essential for preparing the next generation. Other real-world examples are also inspiring. For instance, in Florida, the Florida Rural Water Association (FRWA) works with the U.S. Department of Labor (DOL) and the state's Department of Education (DOE) to create the Water and Wastewater Apprenticeship Program (FRWA News, 2021). This program gives high school individuals the opportunity to gain the necessary experience and training to be considered a qualified employee in the water sector.

3.1.3 Keynote Speaker: Nelly Tsai

Nelly Tsai is a National Board Certified high school educator for Irvine Unified School District who instructs integrated science and interdisciplinary climate explorations. She creates lesson plans across school subjects that highlight the relevance of climate science in multiple contexts. Her courses give students a deeper understanding of the importance of climate science and its real-world applications.

Tsai believes an interdisciplinary method to climate justice is the most effective approach for K-12 school systems. She summarized the current challenges facing the integration of climate justice into school curricula across the state, including insufficient time, inadequate training programs for teachers, and overemphasis on individual awareness of environmental issues. Tsai advocates for an interdisciplinary approach to climate justice education in schools to alleviate challenges associated with effectively teaching this critical subject. In order to give the audience a clearer understanding of what this entails, she presented a case study illustrating how reducing lunch food waste can support the fight against climate change. Each subject will integrate relevant aspects of the issue into its curriculum, aligning them with the general subject of the class. For instance, math classes would engage in data analysis, develop scale thinking, and address uncertainties or variations in data predictions related to the negative impacts associated with climate change. In contrast, science classes would concentrate on scientific investigations about climate change. Introducing students to climate justice early in their academic careers prepares them to become future change agents and interdisciplinary leaders who apply their knowledge to create practical solutions. Although an interdisciplinary approach to climate justice may seem promising, Tsai pointed out that underserved communities often lack the time and resources, which can impede the prevalence of successful programs.

Commentary on Nelly Tsai views

Implementing strategies like an interdisciplinary approach to climate education and programs introducing students to career opportunities in the STEM field can be difficult, as they demand significant time and resources. Nevertheless, there are successful programs that address this. For example, the Loma Linda University (LLU) Summer Health Disparities Research Program for high school and undergraduates established an “evidence-based STEM pipeline program to increase the diversity of the biomedical workforce” (Salto et al., 2014). The summer research experience (SRE) provides participants with the resources and tools to be qualified and successful employees in a STEM-heavy field. As a result, the biomedical sector will more accurately represent their communities and be well-equipped to address their needs; however, since it is a summer program, not everyone who qualifies can attend. Therefore, it would have to be offered during the school year and have more equitable requirements for entry to reach a broader audience. The SRE was created to increase the diversity of the biomedical workforce, but its framework could be modified to address the water workforce's diversity.

Another example of a program that caters to young individuals is the Stormwater Management and Research Team (SMART) program, which partners with a college in Maine. Established in 2014 by the University of Maine, SMART focuses on high school students from under-represented communities by “creating a diverse…STEM pathway with community water research” (Musavi et al., 2018). During the summer program, students and teachers collaborate on research projects that deepen their understanding of the environment while equipping them with the STEM skills and strategies necessary for successful careers in the water sector. Not only does the program allow students to gain experience in the field, but it also gives them a chance to form relationships with science and engineering professionals during the research portion of the project. The University of Maine plans to expand the SMART program to eight more states due to its initial success (Musavi et al., 2018). However, with any program, certain limitations hinder its effectiveness and efficiency. For effective implementation, there must be sufficient funding and resources and enough experienced teachers who can make meaningful contributions to the SMART program. In addition, for it to be accessible during the school year, it would have to be offered as an after-school program. Consequently, the number of students who would be able to participate in the program may decline due to other pre-existing obligations. Nevertheless, the SMART program is a step toward allowing students to engage with the water sector early in their academic careers.

The IDEAL Project also focuses on providing educational materials and opportunities to underserved communities to increase the likelihood of their participation in the water sector. Although the project focuses on college-age individuals and older, expanding the IDEAL Project's audience to include K-12 students would increase the project's chances of wide-reaching success. It is crucial to expose environmental science to students at an early age, as this may enhance their likelihood of pursuing related careers in adulthood. In general, initiatives like these lead to a more diverse and equitable water industry that better represents the populations it serves.

3.2 Q&A Issues and Concerns from Keynote Talks

Following the keynote presentations and breakout sessions, there was a Q&A session that allowed attendees to share their ideas and concerns about the current state of the water sector and the IDEAL Project. Many participants agreed that high school students' awareness of the industry and its opportunities is limited due to the lack of accessibility to programs and internships. Some proposed solutions include creating a proper water career pipeline and incorporating environmental education into the school curriculum. It enriches the education of high school students and exposes them to the industry early in their academic careers, hence increasing the likelihood of them joining the water industry later in life. At the same time, including underrepresented communities in these programs is essential to ensure everyone can access the same opportunities. While high school students are an excellent audience to target, it is equally important to focus on a broader audience. One way to reach a wider audience is to work with water agencies to host community events like water festivals and career fairs, especially in underserved communities. To effectively promote job opportunities and fill positions vacated by retiring individuals in the sector, reaching a consensus on which jobs are crucial for the industry's operation is essential. This information should be communicated clearly to everyone, emphasizing reaching underrepresented communities.

Commentary on Q&A

One major issue identified from the Q&A portion of the workshop is limited accessibility to programs and internships for high-school students that promote awareness of water-related job options. Key discussion points illuminated promising solutions including: creating career pipelines through integrating environmental curricula, encouraging water professionals and organizations to fund events and partnerships, and communicating job needs to the public.

One facet of the problem is the limited access to programs, internships, and resources related to water work for younger individuals in communities. Careers in the environmental sector, including water industry positions, may seem unviable due to a lack of exposure to various work options in the field. More importantly, the lack of understanding regarding the degree or certification requirements for entering the water industry makes securing a position in the water workforce seem even more unattainable for the youth in underserved communities. Hence, educational water programs and internships need to be accessible to a broader audience, particularly in communities historically excluded from such opportunities.

Education plays a vital role in shaping young individuals' career choices. However, integrating environmental education into school curricula and in the context of other subjects, such as mathematics and social studies, is a challenge. Nonetheless, it would enhance career development, often called a “career pipeline,” among younger individuals. The framework and guidelines for environmental education are still under development. The key objective is to create a comprehensive educational approach, which includes addressing uncertainty, focusing on real-world settings, addressing feelings of climate anxiety, and grappling with the complexities of scale. As previously discussed, it is understood that underrepresented

communities and individuals often lack the resources or the means to attend programs or participate in internships within or outside schools. Therefore, one way to help increase career path exposure is by equipping educational institutions with an environmental curriculum that incorporates introductions to environmental-related job opportunities. Knowing how and when to introduce career options and information is crucial for students, especially for careers in the water workforce – a historically exclusive industry of diversity and inclusion. Moreover, creating school programs that emphasize DEI and are targeted toward STEM-related fields increases the number of underrepresented individuals pursuing STEM careers later in life (Musavi et al., 2018; Salto et al., 2014). In addition to our discussion focusing on high school students, grad schools and universities are essential change agents, as they significantly influence a student's career path (Carpi et al., 2017).

Funding community events is another method for career exposure and educational opportunity among a broader range of individuals. Water professionals and organizations should organize annual events, such as water festivals or career fairs, in underserved areas to engage with these communities rather than waiting for residents to travel to them. If organizations seek out locals and establish community events, attendance rates will likely be higher due to ease of access and proximity. Establishing a relationship between professionals and communities can be challenging, especially in traditionally underserved communities; these events and dialogues could help bridge the gap.

Lastly, it is the responsibility of the water sector to define what critical jobs within the workforce are considered essential for effective operation. The industry's needs remain unaddressed due to an aging workforce and a lack of suitable replacements, as consensus on which vital jobs to prioritize has yet to be determined in many cases. In order to facilitate a seamless transition in the water workforce to fill the vacant positions left by retiring employees, it is crucial to notify educational institutions and trainers about the available job openings and the requisite skills for these roles. In other words, the water industry must establish transparent communication between its professional audience and the public to ensure a smooth transition while promoting DEI within the sector. Addressing DEI in the water sector is necessary to overcome the industry's historically insular reputation. Given that working in the water sector is typically a life-long career, it is challenging to break DEI barriers because there is not a consistent exchange between recruitment and retirement to meet DEI demands quickly. Now that the industry requires replacing most of its workforce, open communication with the public is crucial for attracting potential employees. Under-represented individuals are often most in need of employment and often are unaware of the opportunities for work in the water sector.

4. Common Themes Across Breakout Sessions

This section summarizes the common themes widely discussed in the breakout session among the four rooms by the three questions we proposed to the participants. A detailed summary of the discussions held in the breakout rooms, along with existing literature and

technical reports focused on similar themes we found relevant, and that serve as commentary, are included in the appendix.

4.1 Identified DEI Issues in the Water Sector

4.1.1 Systemic Exclusion and Unconscious Bias

A recurring theme identified by participants was the systemic exclusion that continues to hinder DEI progress in the water sector. Although DEI initiatives in the industry have become increasingly prominent, participants noted that these efforts are often diluted. Unconscious bias is a common challenge in promoting DEI in hiring, as it frequently occurs unintentionally. Rather than focusing on individuals already familiar with the industry yet categorized as marginalized, addressing the needs of those genuinely excluded is crucial. Specifically, disadvantaged communities eager to work in the water sector frequently remain uninformed of available job opportunities. A similar pattern is seen when examining the trends for implicit bias and discrimination based on gender.

4.1.2 Under-representation in Decision-making

Another emerging theme was the lack of diverse representation in leadership and decision-making positions within water agencies and governmental bodies. Participants emphasized the disparity between the demographics affected by environmental pollutants and those in positions of authority making the decisions that impact these communities. Additionally, participants noted that women, particularly women of color from the nonprofit sector, are often excluded from opportunities to share their stories and the changes they have driven within the industry. Despite their valuable contributions, these women are seldom invited to speaking panels, highlighting the lack of diverse representation in the sector.

4.1.3 Leadership and Resources

The role of leadership in fostering DEI in the workplace is a critical concern for all industries. According to participants, achieving DEI goals requires a systematic approach beyond merely hiring people from various backgrounds. It also requires comprehensive strategies, including recruiting, retaining, and developing diverse talent. Participants emphasized the importance of leadership's financial support in promoting DEI. Financial investment is crucial for fostering organizational initiatives; a solid financial position gives companies latitude in concentrating on DEI.

4.1.4 Hiring

One significant challenge highlighted in the breakout session was the lack of diversity in the applicant pool for water-related positions. Participants emphasized the difficulty in filling open board positions with diverse candidates, noting that these roles often require greater compensation to reflect the lengthy time commitments. Others highlighted the challenge of targeting diverse outlets for job postings to attract a wider range of applicants, pointing out that

higher-level degree requirements can further narrow the applicant pool. Factors contributing to these issues include, for instance, systemic biases in hiring practices, which favor individuals with access to advanced education and professional networks.

4.1.5 Workplace Culture and Retention

Participants also identified workplace culture as a critical factor impacting DEI efforts. There is still a significant gap in creating an inclusive environment that supports the retention and success of these employees. Microaggressions and subtle slights, particularly toward women of color, were cited as common obstacles. For instance, one participant's anecdotes reveal that women of color in positions of power are often ignored by their subordinates or disregarded compared to their white counterparts. In addition, language within the organization was highlighted as an area requiring attention, particularly language perpetuating stereotypes and exclusion.

4.2 The Effects of Enhancing DEI in the Water Sector

The participants highlighted the importance of addressing DEI issues for fairness and the tangible benefits a more diverse workforce can bring to the sector. It was noted that diverse teams are more successful and achieve more significant results as they bring together various backgrounds and cultures. This diversity in thought and experience can lead to more effective communication and problem-solving, especially in community engagement. By including individuals from various backgrounds and disciplines, the water sector can adopt a more holistic approach to the various challenges it faces, integrating engineering with social sciences and environmental stewardship. A multidisciplinary approach leads to more effective and lasting solutions, promoting enhanced community involvement and trust. When communities see themselves represented in the workforce, they are more likely to trust and participate in water management initiatives, leading to better stewardship of natural resources. Moreover, enhancing DEI can yield significant economic and social benefits, particularly for marginalized communities. Equitable access to education and career opportunities in the water sector can empower these communities financially, improving their quality of life while contributing to the sector's overall economic growth and sustainability. This breakout session provided valuable insights into how inclusive education, internships, networking opportunities, equitable hiring processes, supportive workplace culture, and progressive governmental policies — can foster a more diverse, equitable, and inclusive water sector.

4.3 Suggested Best Institutional Practices and Solutions

4.3.1 Leading with Equity

One of the most prominent solutions discussed for addressing DEI issues in the water sector is prioritizing equity as a fundamental practice. Participants emphasized that DEI will be naturally followed as organizations establish programs and policies that ensure all employees are supported and given equal opportunities to succeed. At the organizational level,

organizations should reform and implement equitable hiring processes such as blind recruitment, setting diversity targets, and training new managers on unconscious bias. Additionally, creating clear pathways for career advancement for underrepresented employees is essential for long-term retention and growth within the sector. A supportive workplace culture is also vital for retaining a diverse workforce, as it fosters an inclusive environment for all employees to feel valued and respected. This can be accomplished through implementing anti-discrimination policies, providing diversity training, and promoting work-life balance with flexible working arrangements and supportive services like access to healthcare, mental health resources, and childcare. At the governmental level, policies backed by external funding should mandate equitable access to education and career opportunities. It was highlighted in the breakout rooms how policies must ensure marginalized communities are involved in decision-making processes related to water management.

4.3.2 Stakeholder Engagement

Breakout session discussions also emphasized the importance of making targeted outreach efforts to build a diverse pool of candidates. To enhance visibility, employers can collaborate with schools, community groups, and professional organizations serving underrepresented groups. In addition to promoting a varied pool of candidates, organizations should invest in developing and maintaining a diverse talent pipeline to ensure a steady stream of candidates. Notably, it is essential to offer internships and apprenticeships that provide individuals from underrepresented groups with hands-on experience and valuable networking opportunities, which are crucial for career development. Also discussed was how integrating insights and methodologies from other fields, such as the social sciences, engineering, and environmental studies, and implementing apprenticeships and mentorship programs can enhance DEI in the water sector.

4.3.3 Elevating Role Models and Mentorship

Another critical practice involves showcasing successful models within the water industry, particularly those led by women in the nonprofit sector. Participants stressed the importance of drawing attention to these examples at industry events and speaking panels to inspire systematic change. Highlighting these organizations can provide insights into creating supportive workplace cultures and promoting adopting best practices industry-wide. In addition, mentorship was highlighted as a crucial strategy for addressing DEI issues and fostering talent in the water sector. Personal stories underscored the vital role of mentorship in inspiring young people, especially those from underrepresented backgrounds, to pursue careers in science and water-related fields. There is widespread agreement on the importance of mentorship in building networks, sharing knowledge, and encouraging self-confidence. Mentoring can guide individuals toward fulfilling careers and help cultivate the next generation of leaders who can make a lasting difference in the industry.

4.3.4 Enhancing the Industry's Appeal

The discussion revealed differing views on how to make the water industry more attractive to prospective job candidates. Some argue that the sector lacks the allure of more glamorous fields like law or medicine, which makes recruitment challenging. However, others countered that the water industry's true appeal lies in the opportunity to make meaningful contributions to society. Since many often overlook the significance of the water industry in comparison to other fields, some participants suggested that the water sector should emphasize the substantial socio-environmental impact individuals can have on their communities. They stressed that fulfillment in careers, such as attorneys, water board directors, or scientists, derives not primarily from the sector's appeal but rather from their positive societal impact.

5. Results

5.1 Major Lessons from the Workshop and Their Relationship to IDEAL

The breakout discussions emphasized the effectiveness of key strategies to eliminate hiring biases, cultivate an organizational culture that supports sustaining DEI, and organize community outreach events to increase community awareness of water industry careers. Moreover, the workshop also highlighted the importance of collaboration among stakeholders to offer internships and mentorship programs to promote job qualification for the youth in underrepresented communities. In addition to those meaningful strategies, the conversations emphasized the significance of educational outreach as a foundation for building a diverse workforce.

The insights gained from the workshop align with the main goals of the IDEAL project. The IDEAL project’s objectives include introducing students from underrepresented communities to careers in the water sector at an earlier stage, which provides the necessary support and resources to pursue this field. This initiative seeks to foster a new generation of professionals who are aware of and invested in the sustainability of our water resources. Engaging communities directly in water management efforts helps implement policies effectively and ensures that the solutions developed are equitable for all stakeholders (Conservation Corps Minnesota & Iowa, n.d.). By exploring various solutions presented in the workshop, the IDEAL project can refine its approach and incorporate valuable insights into action items. For instance, one item could include creating participatory workshops for knowledge co-production to reform organizational practices. By implementing strategies for inclusive Group Model Building used in water resources management, the IDEAL project could help address the concerns of marginalized stakeholders who feel frustrated by their lack of representation. The IDEAL project should focus on: (1) de-anonymizing contributions to the discussion, as anonymization has the opposite effect on making marginalized voices heard, (2) involving participants in the rule-making process and acknowledging power dynamics within the group, (3) being flexible to group participants who may take the discussion in a different direction than anticipated by the facilitator group.

5.2 Findings from the Stakeholder DEI Survey

This section first outlines the identified DEI challenges reported by survey participants in the water sector. It then summarizes the participants' responses by themes: hiring practices, training programs, resource and leadership accountability, education, collaboration, public awareness, and the leading role of public agency. Under each theme, we illustrate the respondents' observed practices in the sector, successful programs, effective strategies, and potential recommendations to address DEI issues.

5.2.1 Identified DEI Challenges in the Water Sector

The survey results reveal a consensus on DEI challenges facing the water sector. Only a small number of stakeholders in the survey claimed that their agency had a diverse pool of employees. Potential reasons for this include a lack of easily accessible resources and services and difficulty finding qualified employees from diverse backgrounds. Many also reported the lack of public awareness about the water industry due to the unavailability of easily accessible information regarding career opportunities. In addition, respondents identified various DEI challenges influencing employment practices across the water sector, most notably the lack of skilled labor qualifications among the general public and BIPOC (Black, Indigenous, and people of color) individuals. This gap is exacerbated by systemic factors such as educational inequality, lack of social connections and networking opportunities, and the absence of essential soft skills for successful career advancement. Other challenges in the water industry identified in the survey include nepotism, which involves favoring relatives or friends for job opportunities, unrepresentative demographics (predominantly white males), discriminatory hiring practices, and an organizational culture that does not prioritize DEI. These factors, combined with a lack of upper management commitment to DEI initiatives, further hinder progress in addressing these issues and contribute to the ongoing disparities in workforce diversity.

5.2.2 Hiring Practices

Regarding hiring practices in the water sector, the survey reveals various approaches and challenges in promoting DEI. Many organizations have begun implementing targeted outreach strategies to attract candidates from underrepresented groups. These efforts include using specialized job boards and social media platforms, participating in job fairs at diverse educational institutions, and forming partnerships with professional associations representing underrepresented communities. In addition, the sector already employs various tactics to reduce bias and broaden its candidate pools regarding inclusive hiring practices. Some reported removing identifiable information from resumes, using diverse interview panels, and including DEI representatives in hiring. Others proposed creating more entry-level positions, offering full reimbursements for school field trips, launching targeted social media campaigns, hosting career workshops, and contributing to DEI-focused sponsorships. Bias training for hiring managers has also been implemented in some cases. The survey responses highlighted several successful recruitment programs, including internship programs for underrepresented

students and partnerships with HBCUs[10] to create more inclusive pipelines. Initiatives like paid internships with housing and relocation reimbursement, multi-language career brochures, and family-oriented outreach events demonstrate efforts to reach underrepresented groups. High school outreach and internship initiatives help build early interest in water sector careers. Some organizations have also created pathways for non-traditional candidates to enter the field, recognizing the value of diverse experiences and backgrounds.

However, the survey also revealed significant remaining challenges in DEI hiring efforts. While some organizations in the water sector have made strides in implementing inclusive hiring practices, many are still in the early stages of developing effective DEI strategies for recruitment and hiring. Some organizations reported having no specific outreach practices for diverse candidates, indicating room for improvement across the sector. Several organizations reported having no specific inclusive hiring practices. Some organizations reported quitting from successful diverse hires recruitment due to cultural issues or lack of advancement opportunities, highlighting the need for comprehensive DEI strategies that extend beyond initial hiring. The survey results underscore the need for more thorough and sustained efforts in this area, focusing on hiring diverse candidates and creating inclusive environments where candidates hired can thrive and advance in their careers. There is a recognized need for better follow-up and retention strategies after diverse hires, more consistent application of DEI principles throughout the hiring process, and improved cultural climate support in a diverse workforce environment. Many respondents emphasized increasing transparency and data collection on hiring outcomes to track progress and identify areas for further improvement.

5.2.3 Training Programs

When asked to identify which aspects of DEI are prioritized in their organization's training programs, the responses reveal an overwhelming focus on general DEI training across organizations, with only a few highlighting specialized approaches. Less common training topics include unconscious and implicit bias, generational differences, emotional intelligence, and ensuring every employee has a voice in the workplace. One organization incorporates justice into its DEI training, focusing on dismantling systemic barriers and inequities that limit access to resources and opportunities. A few organizations emphasize a sense of psychological safety, personality assessments, and providing equal opportunities for growth and development. One organization uses its training sessions to illustrate real-world DEI practices in the industry. Starting by explaining DEI's importance and comparing their district's demographics to the areas they serve at training events, employees are then required to engage in hands-on activities to develop new DEI initiatives that align with the organization. Another priority is making skilled training opportunities accessible to job candidates from underrepresented communities. One of the main issues of promoting a diverse workforce is bringing awareness to diverse communities about available opportunities. Although free training exists in some cases, such as through a company called Veolia, the difficulty lies in getting this information to the right people. Organizations suggest building genuine connections with community members, offering

[10] Stands for historically black colleges and universities.

paid job training through internships and apprenticeships, and partnering with employee resource groups and universities. Moreover, modernizing and streamlining hiring processes and delivering more guidance through bureaucratic reforms could help remove barriers and create a smoother path to securing opportunities in the water sector for underrepresented individuals. This would allow more diverse candidates to secure work more quickly, demonstrating that the water industry can offer viable career opportunities.

5.2.4 Resource and Leadership Accountability

Increased funding was repeatedly highlighted as essential for sustaining and expanding DEI initiatives. Participants emphasized the need for financial support to launch outreach efforts to raise awareness of the water industry, support continued career pathways initiatives, build sustainable infrastructure to attract younger generations, and promote collaboration across organizations. Submitting joint grant proposals with other organizations was also seen as a way to signal long-term commitment to funders and focus on systemic solutions. In addition, obtaining support from organizational leadership, including boards and councils, was essential for driving meaningful change. The role of leadership in driving DEI initiatives was frequently mentioned. Respondents stressed the need for buy-in and commitment from top management and the board of directors to prioritize DEI. Some suggested that middle managers should be held accountable for implementing DEI directives and given the time and resources to do so effectively. Other recommendations included introducing new legislation to mandate demographic reporting and ensuring that leaders understand the makeup of their constituents, which could prompt more informed decisions. Overall, respondents stressed the importance of creating an inclusive organizational culture, providing sustaining ongoing support and development opportunities for diverse employees, and ensuring representation at all levels, particularly in leadership positions.

5.2.5 Education, Collaboration, and Public Awareness

The survey responses emphasize the need for a comprehensive approach to promote DEI that goes beyond just hiring practices. A key theme that emerged was the critical role of education and awareness. Many respondents highlighted the need for better outreach to underrepresented communities, starting with K-12 education to raise increased awareness of career opportunities in the water sector. Moreover, the survey results show that just over half of the respondents (13 out of 25) indicated that their organizations collaborate with others on DEI initiatives. While these collaborations mark a positive step, respondents also pointed out several areas where these efforts could be improved. Among these, respondents stressed the importance of starting regular conversations around DEI and developing a better understanding of where outreach efforts need to be more effectively communicated with underrepresented communities. They emphasized the importance of knowledge sharing through seminars and workshops, where organizations would exchange successful practices and learn from one another.

5.2.6 Leading Role of Public Agency

Given public sector organizations' crucial role in promoting DEI in the water sector, many respondents felt that public sector agencies should lead by example and implement strong DEI practices in their organizations. Suggestions for government action included funding DEI programs and workforce development, enforcing equal opportunity regulations, and promoting awareness of water sector careers in diverse communities. Some also stressed the importance of addressing historical inequities in access to clean water and environmental justice issues as part of the sector's DEI efforts.

Other recommendations for improving DEI collected from the survey emphasized the importance of transparent data collection and sharing metrics, especially in collaboration with industry partners to promote best practices. For example, sharing hiring metrics with nonprofits or educational institutions could help build community support for new initiatives and strengthen DEI outreach. Another recommendation was to take a gradual approach to DEI engagement within public organizations, starting with foundational concepts to build initial staff buy-in before moving on to more complex topics. Many emphasized the need for sustained, long-term efforts, as meaningful cultural change requires time. Overall, while acknowledging recent progress, survey responses highlighted the significant work that remains, recognizing DEI improvement as both a moral imperative and essential for the water sector's future success and sustainability.

6. Recommendations for Future Research and Next Steps

Several recommendations from the workshop, along with research from current reports on specific programs and policies, can be implemented to enhance the implementation of DEI policies. The workshop yielded several key takeaways and recommendations that can be integrated into IDEAL's future initiatives and potentially for the sector to explore and practice. We should be careful in using the term “marginalized” communities to avoid unconsciously perpetuating harm. One participant pointed out that referring to communities as “disadvantaged” can unconsciously imply some inherent deficiency rather than acknowledging that disparities stem from external, systemic issues. Hence, we suggest employing the terms “underserved” and “underrepresented,” implying that some individuals come from communities that lack the necessary resources to flourish due to failures of governance, policy, and practice.

6.1 Collaboration

In order to attract and retain more workers in the water sector, collaboration between employers, regional and national leaders, non-governmental organizations, and educational institutions is essential. They should prioritize creating apprenticeship programs, reducing financial barriers, collaborating with related industries to address training needs, and enhancing academic preparation in K-12 education. This strategy is about “regional actions,” which focus on establishing a communicative relationship between interested outside organizations and

corporations. The U.S. Water Alliance[11](2014) proposed a similar strategy to "nurture talent in the water sector" by engaging young individuals and providing career opportunities while fostering regional collaboration with organizations.

Education partners and NGOs can work together to reach high schools, community colleges, juvenile justice systems, and youth shelters. Programs, such as paid internships and apprenticeships, need to be more easily accessible to students and young workers to allow more people to satisfy the qualifications for entering water careers. While programs aim to equip young people with the necessary skills and experience to enter the water workforce, "Employee-driven actions," which include competency models and bridge programs, offer another effective approach. This involves engaging current employees in the water workforce in shaping the training and development processes, thereby ensuring that the skills taught align closely with industry needs. This model is regarded as one of the most effective ways for young workers to train and acquire experience. In addition, the water industry should engage with young students by inviting a diverse group of water leaders as guest speakers to schools or career festivals to inspire and inform youth about opportunities in the water sector. The initiatives include expanding paid internship opportunities for entry-level, mission-critical careers and fostering regional collaboration among water workers, community organizations, labor unions, and education providers (U.S. Water Alliance, 2014). Organizing school fundraisers or establishing partnerships with NGOs, governmental agencies, schools, and local communities to pool funding for training and internship programs is essential to provide opportunities for those unable to afford education after high school.

6.2 Stakeholder Engagement

Communication channels among community partners, workers, and employers must be strengthened. However, the complexity of coordinating extensive communication among multiple parties often leads to bureaucracy, hindering meaningful progress. Fairness should be promoted in the process to ensure that progress is maintained without creating new barriers to entry. This can be done by clearly defining project goals, involving diverse stakeholders, including those without formal organizational representation, and compensating participants for their time, considering the most underrepresented individuals often have limited availability to participate.

Furthermore, scheduling local community committee meetings that bring together community members and stakeholders from the water sector can effectively induce state and national lawmakers to invest more in expanding access to educational opportunities. The third strategy emphasizes the need to inspire and prepare future water leaders, a focus that is becoming increasingly critical in light of challenges such as aging infrastructure and employment gaps within the sector (U.S. Water Alliance, 2014).

Employers and community partners should also hold regular brainstorming sessions to develop comprehensive water workforce plans. These plans should address issues related to

[11]U.S. Water Alliance is a nonprofit organization with over 200 members of water organizations and agencies.

insufficient employment and inadequate local hiring practices of women and minorities, thus encompassing diverse voices. Moreover, national and state leaders should offer clear technical support and guidelines, implement robust programmatic diagnoses and remedies, and allocate targeted investments in workforce development. Lastly, establishing a state or county-level "Water Workforce Council" to provide expert advice and institutionalize versatile, streamlined water certifications could enhance human resources management and public initiatives.

6.3 Repository Establishment and Data Sharing

Consolidating information on regional practices and workforce development strategies into a single repository highlighting the best regional practices and innovative water workforce development strategies would be extremely helpful as a basis for reference. For instance, internship programs can provide valuable skills and knowledge to enter the water workforce. The repository could catalog information on internship programs funded through agencies such as the EPA, the Department of Labor, and the Veterans Administration. Moreover, hosting workshops, such as the one organized by the IDEAL Project, can provide an additional source of information. While the workshop was a step in the right direction, participants from underrepresented communities noted that the project needed to work on actively including more individuals from marginalized communities. Some solutions for the IDEAL project include implementing strategies that promote inclusive group modeling such as including individuals from underrepresented communities in the rule-making process. The IDEAL Project has the potential to make a significant impact on the water sector if it continues to evolve.

Additionally, creating a new water workforce playbook could be an effective tool to outline a catalog of actions aimed to help utilities, water employers, community partners, and national and state leaders design and carry out practical solutions. This tool could enable the water industry and authorities to initiate bridge programs to engage younger and nontraditional workers, providing them with valuable experiences and opportunities to participate in formal mentorship programs. In addition, there is also a need for a national water workforce database that water sector companies and organizations can use. This database could help affected communities address water challenges by involving and guiding individuals into leadership roles through leadership development (U.S. Water Alliance, 2024). At the organizational level, a database may include standardizing practices by connecting utilities with nationally accepted, standardized resources and creating shared water career paths that provide basic academic, technical, and employability skills. Utilities could also build user-friendly career pathway maps in the database, outlining the education, experience, skills, and credentials needed for each career step. This could help offer wage flexibility to incentivize diverse talent and strong performance (U.S. Water Alliance, 2014).

6.4 Leadership Training Programs

Initiatives aimed at promoting the development of historically underrepresented talent in the water sector would help facilitate a more diverse water workforce in California. For example, some organizations at the state level are training the next generation of leaders in the water

sector. The Water Education for Latino Leaders (WELL)[12] and the California African American Water Education Foundation (CAAWEF)[13] launched The Educate to Lead Program to empower women and leaders from BIPOC communities. The program's objective is to equip them with the tools to drive meaningful change and foster DEI within their organizations ("Educate to Lead," n.d.). This state-wide initiative is designed for mid-level managers who are women and BIPOC leaders working in the California water sectors, experiencing a leadership role with an interest in contributing to DEI initiatives. One goal of the program is to develop a pipeline of women and BIPOC leaders, prepare them to take on leadership roles that help address the sector's most urgent challenges, such as evolving DEI needs, and provide sustainable mentorship, equipping participants for long-term career growth. The program is funded by the California Workforce Development Board High Roads Training Program, hence free to participate through offering a limited number of scholarships that help cover the expenses of travel, accommodations, and meals ("Educate to Lead Program," n.d.). The program offers online sessions ranging from one to two hours while in-person sessions span one and a half days, led by a diverse faculty of BIPOC water industry professionals and general managers ("Educate to Lead Program," n.d.).We will seek to evaluate the effectiveness and successes of the Educate to Lead Program and other ongoing leadership training programs aimed at promoting DEI in the California water sector in the next phase of the IDEAL project.

7. Conclusion

Achieving DEI in the water sector is an ongoing process driven by commitment and active collaboration from all stakeholders. Through various initiatives, California's water sector pursues solutions to challenges ranging from workforce gaps to lack of diversity and equity. These initiatives involve creating outreach programs to educate and inform individuals from diverse backgrounds about career opportunities and offering scholarship, fellowship, and mentorship programs to support underrepresented groups pursuing careers in water-related fields. Water agencies and outside organizations are collaborating to develop standardized qualifications and certifications for different roles within the water sector, collectively creating clearer pathways for career progression and mobility within the industry.

Through these comprehensive strategies, the IDEAL project is well-positioned to help assist in building a more equitable and sustainable future in water management. However, recent federal actions against DEI initiatives and public opposition have created significant challenges in achieving a more equitable water sector. It is important to acknowledge that these are complex issues, and the path forward remains uncertain. Nevertheless, our team is committed to playing a key role in driving these transformative changes by applying the strategies outlined in this report. While the current political climate presents significant challenges, these only highlight the critical need for change. A more sustainable and equitable

[12] CAAWEF's objective is to diversify the water sector by creating training and mentorship programs for water leaders as well as impacting public policy to lower barriers to entry for Black Californians.

[13] WELL is composed of water experts and elected officials to provide education and training opportunities through conferences and water workshops to Latino communities involved in the water sector.

water sector not only benefits the sector but also contributes to broader societal goals of fairness and inclusivity, ensuring that California's water resources benefit all residents. The project's success could serve as a model for other regions, demonstrating the power of DEI-focused initiatives in building a resilient and innovative workforce.

8. References

Acquah, S., & Allaire, M. (2023). Disparities in drinking water quality: Evidence from California. *Water Policy*, 25(2), 69–86. https://doi.org/10.2166/wp.2023.068.

ACTAT General Information Flyer. (2021). Kentucky Water Resources Research Institute. https://www.research.uky.edu/sites/default/files/uploads/2021-01/ACTAT%20General%20Info%20Flyer%20FINAL.pdf.

ACTAT Program. (n.d.). Tennessee Water Resources Research Center. https://tnwrrc-dev.utk.edu/technical-assistance/actat-program/.

Akhmouch, A., & Clavreul, D. (2016). Stakeholder engagement for inclusive water governance: "Practicing what we preach" with the OECD Water Governance Initiative. *Water*, *8*(5), 204. https://doi.org/10.3390/w8050204 .

Allport, G. W., Clark, K., & Pettigrew, T. (1954). *The Nature of Prejudice*. Addison-Wesley.

Armitage, D., Charles, A., Berkes, F. (2017). Governing the coastal commons: Lessons from Canada and beyond. https://www.communityconservation.net/wp-content/uploads/2017/07/Governing-the-Coastal-Commons-Booklet.pdf.

Åslund, O., & Skans, O. N. (2012). Do anonymous job application procedures level the playing field?. *ILR Review*, *65*(1), 82-107.https://journals.sagepub.com/doi/abs/10.1177/001979391206500105.

Avery, D. R., & Mckay, P.F. (2006). Target Practice: An Organizational Impression Management Approach to Attracting Minority and Female Job Applicants. *Personal Psychology, 59*(1),157-184. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1744-6570.2006.00807.x.

BAYWORK, Jewish Vocational Service, & The Centers of Excellence. (2017). Water and wastewater career pathways: Connecting people to water industry jobs in the Bay Area. BAYWORK.https://baywork.org/wp-content/uploads/2017/10/BAYWORK-JVS-Water-Report-2017.pdf.

Bell, R., & Martin, J. (2012). The Relevance of Scientific Management and Equity Theory in Everyday Managerial Communication Situations. *Journal of Management Policy and Practice*, *13*(3). https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2372166.

Bennett, V., Dávila-Poblete, S., & Rico, M. N. (2008). Water And Gender: The Unexpected Connection That Really Matters. *Journal of International Affairs*, 61(2), 107–126. http://www.jstor.org/stable/24358114.

Berberian, A.G., Rempel, J., Depsky, N., Bangia, K., Wang, S., & Cushing, L. J. (2023). Race, Racism, and Drinking Water Contamination Risk From Oil and Gas Wells in Los Angeles County. *American Journal of Public Health*. 1179-1181. https://ajph.aphapublications.org/doi/pdf/10.2105/AJPH.2023.307374.

Biswas, A.K., & Tortajada, C. (2019). Water Crisis and Water Wars: Myths and Realities. *International Journal of Water Resources Development*. https://www.tandfonline.com/doi/full/10.1080/07900627.2019.1636502.

Bohnet, I., Van Green, A., & Bazerman, M. (2016). When Performance Trumps Gender Bias: Joint vs. Separate Evaluation. *Management Science*. *62*(5), 1225-1234. https://pubsonline.informs.org/doi/epdf/10.1287/mnsc.2015.2186.

Bond, M. A., & Haynes, M. C. (2014). Workplace Diversity: A Social-Ecological Framework and Policy Implications. *Social Issues and Policy Review*, *8*(1), 167-201. https://spssi.onlinelibrary.wiley.com/doi/10.1111/sipr.12005.

Braddy, P. W., Meade, A. W., & Kroustalis, C. M. (2006). Organizational Recruitment Website Effects on Viewers' Perceptions of Organizational Culture. *Journal of Business and Psychology*, *20*, 525-543. https://link.springer.com/article/10.1007/s10869-005-9003-4.

Brandt, T., & Laiho, M. (2013). Gender and Personality in Transformational Leadership Context: An Examination of Leader and Subordinate Perspectives. *Leadership & Organization Development Journal*, *34*(1), 44-66. https://www.researchgate.net/publication/263603059_Gender_and_personality_in_transformational_leadership_context_An_examination_of_leader_and_subordinate_perspectives.

Brewer, M. B. (1991). The social self: On being the same and different at the same time. *Personality and social psychology bulletin*, *17*(5), 475-482. https://journals.sagepub.com/doi/10.1177/0146167291175001.

Brewer, M. B., & Gardner, W. (1996). Who is this" We"? Levels of Collective Identity and Self-Representations. *Journal of personality and social psychology*, *71*(1), 83. https://www.researchgate.net/profile/Wendi-Gardner/publication/232469632_Who_Is_This_We_Levels_of_Collective_Identity_and_Self_Representations/links/02e7e52161850e2ac8000000/Who-Is-This-We-Levels-of-Collective-Identity-and-Self-Representations.pdf.

Burns, J. M. (1978). *Leadership*. New York: Harper & Row.

Bushman, M., & Parker, C. (2014). “Building Community Partnerships for Watershed Education: A Needs-Based Assessment on Virginia’s Eastern Shore.” University of Wisconsin, 2–93. http://digital.library.wisc.edu/1793/81753.

Butler, C., & Adamowski, J. (2015). Empowering marginalized communities in water resources management: Addressing inequitable practices in participatory model building. *Journal of Environmental Management*, *153*, 153–162. https://doi.org/10.1016/j.jenvman.2015.02.010.

California Department of Water Resources. (n.d.). *Apprenticeship Program*. https://water.ca.gov/About/Careers/Apprentice-Program

California Natural Resource Agency. (2022, August). California’s Water Supply Strategy – Adapting to a Hotter, Drier Future. https://resources.ca.gov/media/CNRA-Website/Files/Initiatives/Water-Resilience/CA-Water-Supply-Strategy.pdf. (Note: This document is no longer available online)

California Rural Water Association. (n.d.). Workforce apprenticeship program. https://calruralwater.org/our-programs/workforce/apprenticeship/.

California State Water Resources Control Board. (2024). Drinking Water Needs Assessment. (20) https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/needs/2024/2024-needs-assessment.pdf.

Capowski, G. (1996). Managing Diversity. *Management Review*, *85*(6), 12.

Carpi, A., Ronan, D. M., Falconer, H. M., & Lents, N. H. (2017). Cultivating minority scientists: Undergraduate research increases self-efficacy and career ambitions for underrepresented students in STEM. *Journal of Research in Science Teaching*, 54(2), 169-194. https://doi.org/10.1002/tea.21341.

Conservation Corps Minnesota & Iowa. (n.d.). About. https://conservationcorps.org/about/.

Conservation Corps Minnesota & Iowa. (n.d.). Increasing diversity in environmental careers: Application & selection process. https://conservationcorps.org/programs/increasing-diversity-in-environmental-careers/logistics/.

Conservation Corps Minnesota & Iowa. (2024). Increasing diversity in environmental careers. https://conservationcorps.org/programs/increasing-diversity-in-environmental-careers/.

Cooper, A., Purnsley, B., Washington, F. E., & Bell, R. L. (2015). Is the Leadership for Diversity, Equity, and Inclusion Here to Stay?. *Journal of Organizational Cultural Communications and Conflict*, 27, 1-9. https://www.researchgate.net/publication/369608322_IS_THE_LEADERSHIP_FOR_DIVERSITY_EQUITY_AND_INCLUSION_HERE_TO_STAY.

Cutts, B., Muñoz-Erickson, T. A., & Shutters, S. T. (2015). Public representation in water management: A network analysis of organization and public perceptions in Phoenix,

Arizona. *Routledge; Taylor & Francis Group*, 2–19. https://doi.org/10.1080/08941920.2015.1020581.

De Guzman, K., Stone, G., Yang, A. R., Schaffer, K. E., Lo, S., Kojok, R., Kirkpatrick, C. R., Del Pozo, A. G., Le, T. T., DePledge, L., Frost, E. L., & Kayser, G. L. (2023). Drinking water and the implications for gender equity and empowerment: A systematic review of qualitative and quantitative evidence. *International Journal of Hygiene and Environmental Health*, *247*, 114044. https://www.sciencedirect.com/science/article/pii/S1438463922001274.

Dickerson, S. T., & Butler, A. (2018). Resolve workforce challenges to ensure future success at Water and Waste Water Utilities. *Opflow*, 44(9), 8–9. https://doi.org/10.1002/opfl.1063

Dobbin, F., & Kalev, A. (2016). Why Diversity Programs Fail. *Harvard Business Review*, *94*(7), 14. https://hbr.org/2016/07/why-diversity-programs-fail.

Edmans, A., Flammer, C., & Glossner, S. (2023). Diversity, Equity, and Inclusion (No w.31215). *National Bureau of Economic Research*. https://www.nber.org/system/files/working_papers/w31215/w31215.pdf.

Educate to Lead. (n.d.). Water Education for Latino Leaders. https://latinosforwater.org/educate-to-lead/.

Educate to Lead Program. (n.d.). California African American Water Education Foundation. https://caawef.com/educate-to-lead-program/.

Environmental Career Worker Training Program NIH. (2024). *National Institute of Environmental Health Sciences* (NIEHS). https://www.niehs.nih.gov/careers/hazmat/training_program_areas/ecwtp/index.cfm.

Environmental Training and Job Placement Program. (n.d.). Sustainable Workplace Alliance. https://sustainablewp.org/ecwtp/.

Evergreen Rural Water of Washington. (n.d.). About the program. https://www.erwow.org/about_the_program.php.

Evergreen Rural Water of Washington. (n.d.). Apprentice fact sheet. https://www.erwow.org/docs/Apprentice_fact_sheet1.pdf.

Florida Rural Water Association. (n.d.). FRWA's Apprenticeship Program. https://www.frwa.net/apprenticeship-program.

FRWA News. (2021, December 27.). Apprenticeship Program https://www.frwa.net/news/apprenticeship-program

Fitzsimmons, T. W., & Callan, V. J. (2020). The diversity gap in leadership: What are we missing in current theorizing?. *The Leadership Quarterly*, *31*(4), 101347. https://www.sciencedirect.com/science/article/pii/S1048984318307513?via%3Dihub.

Ferdman, B. M., & Sagiv, L. (2012). Diversity in organizations and cross-cultural work psychology: What if they were more connected?. *Industrial and Organizational Psychology*, *5*(3), 323-345. https://psycnet.apa.org/record/2012-21053-013.

Ferdman, B. M. (2013). The practice of inclusion in diverse organizations. *Diversity at work: The practice of inclusion*, 3-54. https://doi.org/10.1002/9781118764282.ch1.

Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence that gendered wording in job advertisements exists and sustains gender inequality. *Journal of personality and social psychology*, *101*(1), 109. https://ideas.wharton.upenn.edu/wp-content/uploads/2018/07/Gaucher-Friesen-Kay-2011.pdf.

Gill, G. K., McNally, M.J., & Berman, V. (2011). Effective Diversity, Equity, and Inclusion Practices. *Healthcare Management Forum*, 31(5), 196-199. Sage CA: Los Angeles, CA: Sage Publications. https://journals.sagepub.com/doi/10.1177/0840470418773785.

Hedge, S. (2020). Barriers and Bias: Women in Water Utilities Are Breaking Them All. WH2O: *The Journal of Gender and Water*, *7*. https://repository.upenn.edu/wh2ojournal/vol7/iss1/2/.

Hirsh, E. & Tomaskovic-Devey, D. (2020). Metrics, Accountability, and Transparency: A Simple Recipe to Increase Diversity and Reduce Bias. 16-23. https://www.umass.edu/employmentequity/sites/default/files/What_Works.pdf.

International Water Association. (2016). The untapped resource: Capturing the potential for water reuse in the MENA region. https://www.iwa-network.org/wp-content/uploads/2016/08/The_Untapped_Resource_screen.pdf.

Jackson, P. & Vermont Rural Water Association. (n.d.). Apprenticeships Available for Drinking Water and Wastewater Operators: Programs to provide job training and new employees for state utilities. https://vtruralwater.org/apprenticeships-available-for-drinking-water-and-wastewater-operators/.

Kane, J., & Tomer, A. (2018). Renewing the water workforce: Improving water infrastructure and creating a pipeline to opportunity. *Brookings*. https://www.brookings.edu/wp-content/uploads/2018/06/brookings-metro-renewing-the-water-workforce-june-2018.pdf.

Karia, A. O., Omari, S., Mwanaongoro, S., & Kimori, Y. (2016). Importance of training and development on performance of public water utilities in Tanzania. *African Journal of Education and Human Development*, 2(2), 10-18. https://www.researchgate.net/profile/Stella-Omari/publication/320215089_Importance_of_Training_and_Development_on_Performance_of_Public_Water_Utilities_in_Tanzania/links/59d5285d458515140ee43ee6/Importance-of-Training-and-Development-on-Performance-of-Public-Water-Utilities-in-Tanzania.pdf.

Kenney, L., McGee, P., & Bhatnagar, K. (2012). Different, Not Deficient: The Challenges Women Face in STEM Fields. *The Journal of Technology, Management, and Applied*

Engineering. 2(8), 2-9. The Challenges Women Face in STEM FieldsIowa State University Digital Press https://www.iastatedigitalpress.com.

Kiradoo, G. (2011). Evaluating the Role of Corporate Human Resource Functioning in Influencing Global Talent Management (GTM). *International Journal of Marketing & Human Resource Management (IJMHRM)*, *2*(1), 7-15. https://www.researchgate.net/publication/370004223_Evaluating_the_Role_of_Corporate_Human_Resource_Function_in_Influencing_Global_Talent_Management_GTM.

Kiradoo, G. (2022). Diversity, Equity, and Inclusion in the Workplace: Strategies for Achieving and Sustaining a Diverse Workforce. *Advance Research in Social Science and Management, Edition 1*, 139-151. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4392136.

Larson, K. L., & Redman, E. N. (2014). Water education for sustainability: Criteria and recommendations. Society & Natural Resources, 27(11), 1213-1222. https://doi.org/10.1080/08941920.2014.933932.

Litskas, V. D., Iakovoglou, V., & Zaimes, G. N. (2023). Innovation in water education programs in the Eastern Mediterranean to enhance security and socio-economic development under climate change. *Euro-Mediterranean Journal for Environmental Integration*, 8, 243–253. https://doi.org/10.1007/s41207-023-00267-7.

Lyness, K. S., & Heilman, M. E. (2006). When Fit is Fundamental: Performance Evaluations and Promotions of Upper-level Female and Male Managers. *Journal of Applied Psychology*. 91(4), 777. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=598e13eefe3fa2e8256fc3f28ebcd78634d3f4ae.

Mackenzie, L. N., & Wehnner, J. (2023). Context Matters: Moving Beyond “Best Practices” to Creating Sustainable Change. *What Works?*, 45. https://www.umass.edu/employmentequity/context-matters-moving-beyond-%E2%80%9Cbest-practices%E2%80%9D-creating-sustainable-change.

Maheshwari, B., Atkins, D., Hagare, D., Spencer, R., Dillon, P., Jain, S., Rollason, R., Reynolds, J., Dollin, J., Batelaan, O., Packham, R., Patel, J. B., Purkait, M. K., Bhaduri, A., Mailapalli, D., Ashok, A., & Prasad, J. (2023). Mentoring in the young water professionals' training program: Lessons for effective capacity development. *Water and Wastewater Professional Development*, 2 (12129). https://doi.org/10.1002/wwp2.12129.

Means, D. R., Hudson, T. D., & Tish, E. (2019). A snapshot of college access and inequity: Using photography to illuminate the pathways to higher education for underserved youth. *The High School Journal*, *102*(2), 139–158. https://doi.org/10.1353/hsj.2019.0003.

Mor-Barak, M.E., & Cherin, D. A. (1998). A Tool to Expand Organizational Understanding of Workforce Diversity: Exploring a Measure of Inclusion-Exclusion, *Administration in Social Work*, 22(1), 47-64. https://www.scribd.com/document/536542158/A-Tool-to-Expand-Organizational-Understanding-of-Workforce-Diversity.

Moss-Racusin, C. A., Dovidio, J. F., Brescoll, V. L., Graham, M. J., & Handelsman, J. (2012). Science Faculty's Subtle Gender Bias Favors Male Students. *Proceedings of the National Academy of Sciences, 109*(4), 16474-16479. https://www.pnas.org/doi/10.1073/pnas.1211286109.

Mullen, B. (1983). Operationalizing the effect of the group on the individual: A self-attention perspective. *Journal of Experimental Social Psychology*, *19*(4), 295–322. https://doi.org/10.1016/0022-1031(83)90025-2.

Munter, M. (1993). Cross-Cultural Communication for Managers. *Business Horizons*, *36*(3), 69-79. https://www.researchgate.net/publication/4883867_Cross-Cultural_Communication_for_Managers.

Musavi, M., Friess, W. A., James, C., & Isherwood, J. C. (2018). Changing the Face of STEM with Stormwater Research. *International Journal of STEM Education*, 1–12. https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-018-0099-2.

Obenauer, W. G., & Langer, N. (2019). Inclusion is not a slam dunk: A study of differential leadership outcomes in the absence of a glass cliff. *The Leadership Quarterly*, *30*(6), 101334. https://www.sciencedirect.com/science/article/pii/S1048984318305976?via%3Dihub.

Operation-Career-Launch. (2022, April). Sustainable Workplace Alliance. https://sustainablewp.org/wp-content/uploads/2022/04/Operation-Career-Launch.pdf.

Ostadtaghizadeh, A., Hamdanieh, L., & Nasseri, S. (2022). Effects of COVID-19 on the availability of clean water and sanitation. In *COVID-19 and the Sustainable Development Goals*,31-52. Elsevier. . https://pmc.ncbi.nlm.nih.gov/articles/PMC9334991/.

Ployhart, R. E. (2006). Staffing in the 21st Century: New Challenges and Strategic Opportunities. *Journal of management*, *32*(6), 868-897. https://www.researchgate.net/publication/247570058_Staffing_in_the_21st_Century_New_Challenges_and_Strategic_Opportunities.

Quillian, L., Pager, D., Hexel, O., & Midtbøen, A. H. (2017). Meta-Analysis of Field Experiments Shows No Change in Racial Discrimination in Hiring Over Time. *Proceedings of the National Academy of Sciences*, 114(41), 10870-10875. https://www.pnas.org/doi/10.1073/pnas.1706255114.

Roberson, Q. M. (2019). Diversity in the workplace: A review, synthesis, and future research agenda. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*, 69-88. https://www.annualreviews.org/content/journals/10.1146/annurev-orgpsych-012218-015243.

Robnett, R. D., Nelson, P. A., Zurbriggen, E. L., Crosby, F. J., & Chemers, M. M. (2018). Research mentoring and scientist identity: insights from undergraduates and their

mentors. *International journal of STEM education*, *5*, 1-14. https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-018-0139-y.

Salto, L. M., Riggs, M. L., De Leon, D. D., Casiano, C. A., & De Leon, M. (2014). Underrepresented Minority High School and College Students Report STEM-Pipeline Sustaining Gains After Participating in the Loma Linda University Health Disparities Research Program. *PLOS ONE*, *9*, e108497. https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0108497.

Scarlett, R. D., Subramaniam, M., McMillan, S. K., Ingermann, A. T., & Clinton, S. M. (2021). Stormwater on the margins: Influence of race, gender, and education on willingness to participate in stormwater management. *Journal of Environmental Management*, 290, 112552. https://www.sciencedirect.com/science/article/pii/S0301479721006149.

Schaider, L. A., Swetschinski, L., Campbell, C., & Rudel, R. A. (2019). Environmental justice and drinking water quality: Are there socioeconomic disparities in nitrate levels in U.S. drinking water? *Environmental Health*, 18(1). https://doi.org/10.1186/s12940-018-0442-6.

Shore, L. M., Randel, A. E., Chung, B. G., Dean, M. A., Holcombe Ehrhart, K., & Singh, G. (2011). Inclusion and diversity in work groups: A review and model for future research. *Journal of management*, *37*(4), 1262-1289.https://ideas.wharton.upenn.edu/wp-content/uploads/2018/07/Shore-Randel-Chung-Dean-Holcombe-Ehrhart-Singh-2011.pdf.

Stangor, C., Lynch, L., Duan, C., & Glas, B. (1992). Categorization of individuals on the basis of multiple social features. *Journal of Personality and Social Psychology*, *62*(2), 207. https://www.researchgate.net/publication/232481939_Categorization_of_Individuals_on_the_Basis_of_Multiple_Social_Features.

Stanley, C. A., Watson, K. L., Reyes, J. M., & Varela, K. S. (2019). Organizational change and the chief diversity officer: A case study of institutionalizing a diversity plan. *Journal of Diversity in Higher Education*, *12*(3), 255. https://psycnet.apa.org/buy/2018-58539-001

Stockard, J., Rohlfing, C. M., & Richmond, G. L. (2021). *Equity for women and underrepresented minorities in STEM: Graduate experiences and career plans in chemistry. Proceedings of the National Academy of Sciences*, 118(4), e2020508118. https://doi.org/10.1073/pnas.2020508118.

Tajfel, H., & Turner, J. C. (2004). The social identity theory of intergroup behavior. In *Political psychology*. *Psychology Press*, 276-293. https://psycnet.apa.org/record/2004-13697-016.

Taylor, D. E. (2018). Racial and ethnic differences in the students' readiness, identity, perceptions of institutional diversity, and desire to join the environmental workforce. Springer, 152–168. https://link.springer.com/article/10.1007/s13412-017-0447-4.

Thibeaux, S., Tillotson, G., Falls, T., & Bell, R. L. (2006). Imposition of Diversity: The Imposition of Diversity-Training Through Top Down Management Communication. *Journal of Diversity Management (JDM)*, 1(2), 1-12. https://clutejournals.com/index.php/JDM/article/view/5030/5121.

Triandis, H. C., Kurowski, L. L., & Gelfand, M. J. (1994). Workplace diversity. *Handbook of industrial and organizational psychology*. (2). 769-827. https://psycnet.apa.org/record/1994-97086-016.

Turner, J. C. (1987). *Rediscovering the social group: A self-categorization theory*. Basil Blackwell.

UCI School of Social Ecology. (2023). *Water UCI Receives IDEAL Grant*. https://socialecology.uci.edu/news/water-uci-receives-ideal-grant.

U.S. EPA. (2020). *America's Water Sector Workforce Initiative: A Call to Action.* https://www.epa.gov/sites/default/files/2020-11/documents/americas_water_sector_workforce_initative_final.pdf.

U.S. Office of Personnel Management (US OPM). (2021). *Government-wide Strategic Plan to Advance Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce*. https://www.whitehouse.gov/wp-content/uploads/2021/11/Strategic-Plan-to-Advance-Diversity-Equity-Inclusion-and-Accessibility-in-the-Federal-Workforce-11.23.21.pdf?utm_medium=email&utm_source=govdelivery.

U.S. Water Alliance. (2022). *Advancing racial equity across the water sector: A toolkit for utilities*. https://uswateralliance.org/wp-content/uploads/2023/10/Racial-Equity-Toolkit.pdf.

U.S. Water Alliance (2024). *Toward a Strong and Equitable Water Workforce*.https://uswateralliance.org/wp-content/uploads/2024/02/Toward-a-Strong-and-Equitable-Water-Workforce.pdf.

University of Kentucky ACTAT Program. (n.d.). *Kentucky Water Resources Research Institute*. https://kwri.uky.edu/actat.

Vermont Rural Water Association. (n.d.). *Water & Wastewater Apprenticeship Program*. https://vtruralwater.org/training/apprentices/.

Vermont Rural Water Association & National Rural Water Association. (n.d.). *Apprenticeship Program: Water and Wastewater Operations Specialist*. https://vtruralwater.org/wp-content/uploads/2024/06/Apprenticeship-Brochure-2024.pdf.

Verschoor, G. (n.d.). *ENHANCING PERFORMANCE OF A TRANSFORMING WATER UTILITY THROUGH IMPROVED EDUCATION AND TRAINING OF EMPLOYEES*. Rand Water. https://wisa.org.za/wp-content/uploads/2018/12/WISA2006-P187.pdf.

Vroom, V. H. (1964). *Work and motivation*. John Willey & Sons. https://www.scribd.com/document/408299722/WORK-AND-MOTIVATION-Victor-Vroom-pdf.

Water Environment. (n.d.). *Diversity, Equity, and Inclusion Definitions*. https://www.wef.org/dei.

Water UCI. (2024). *IDEAL Project*. https://water.uci.edu/team-water-uci/.

WATER WORK FORCE ACADEMY: APPRENTICESHIP AND TRAINING & Cal Poly Pomona. (2023). *Water Operator Workforce Ready Certificate Program*. https://www.waterworkforce.com/academy/.

Williams, K. Y., & O'Reilly III, C. A. (1998). *Demography and Diversity in Organizations: A Review of 40 years of Research*, *20*, 77-140. https://web.mit.edu/cortiz/www/Diversity/PDFs/Williams%20and%20O'Reilly,%201998.pdf.

Williams, L. H. (2022). *Water Needs Assessment: Pathways to Employment in a Water Centric City.* UWM Center for Economic Development, *53*. https://dc.uwm.edu/ced_pubs/53/?utm_source=dc.uwm.edu%2Fced_pubs%2F53&utm_medium=PDF&utm_campaign=PDFCoverPages.

Williams, S. A., Eden, S., Megdal, S. B., & Joe-Gaddy, V. (2023). Diversity, equity, inclusion, and justice in water dialogues: a review and conceptualization. *Journal of Contemporary Water Research & Education, 177*(1), 113-139. https://ucowr.org/wp-content/uploads/2023/04/177_Williams_et_al.pdf.

9. Appendix

9.1 Water UCI DEI Survey

Understanding Diversity, Equity and Inclusion in the Water Sector

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About the Survey

*The **Water UCI DEI survey** hopes to understand the diversity, equity and inclusion related challenges facing under-represented groups in the water industry in California. This survey is divided into FOUR main sections: general DEI questions, DEI questions related to training, DEI questions related to hiring and your viewpoint related to DEI.* ***We anticipate this survey will take approximately 15 minutes to complete.***

*We understand **diversity, equity, and inclusion are interconnected**. Diversity focuses on valuing differences and increasing the opportunities for underrepresented groups or perspectives. Inclusion embraces the perspectives, voices, values, and needs of all group members and serves as a process and practice to achieve the goal of diversity. Finally, equity focuses on whether the types and degree of support provided are sufficient relative to the needs of the underrepresented in a group.*

We wish to emphasize that this survey will be confidential and no identifying information will be made public or shared. We are only interested in the aggregate results we receive from all survey participants. If you have questions regarding the survey, please feel free to contact Professor Feldman (feldmand@uci.edu) and/ or Associate Director Changdeok Gim (cgim@uci.edu).

Your perspectives on DEI will inform research and applications to further DEI in the water sector.

Thank you so much for participating.

Email:

Informed Consent | Please click "Yes" to confirm that you are at least 18 years old and consent to participate in our survey.

Section 1 Demographics | The next few questions are related to **demographics.**

1. Your name and title.
2. Name of your organization.
3. Please enter the ZIP code of your organization or the ZIP code where most of your work is focused.
4. What is your role in ensuring that DEI is integrated into all aspects of decision-making at your organizations?
    - I am responsible for setting the overall DEI strategic direction for the organization.

- I work with staff across the organization to ensure that DEI is integrated into business decision-making.
- I am responsible for implementing DEI initiatives within my team.
- I participate in DEI initiatives and/or efforts.
- Other (please specify)

5. Survey Pre-Test | We are looking to interview survey respondents to further improve this survey. Would you like to be contacted to participate in a short interview related to this survey?
    - Yes
    - No
    - I want to know more before signing up for this.

Section 2 DEI | General Practices | The next few questions ask about your organization's **general** diversity, inclusion and equity (DEI) practices

1. Does your organization have employees or a team dedicated for DEI initiatives?

    No, we do not have any dedicated employees, team or volunteers for DEI initiatives in our organization.

Yes, we have some employee-volunteers that run DEI initiatives in the organization.

    Yes, we have a part-time and volunteer DEI team and/or position.

    Yes, we have a full-time DEI team and several DEI related positions.

2. On a scale of 1 to 10, how would you rate your organization's representation of diverse backgrounds and identities?

3. What are the key diversity, inclusion and equity issues that impact employment in the water sector?
4. How does your organization promote professional careers in the water industry to underrepresented groups specifically?
5. What kind of outreach programs does your organization conduct to improve diversity, inclusion and equity in the water sector?

Section 3 DEI | Training | *The next few questions ask about your organization's* ***training related to*** *diversity, inclusion and equity (DEI) practices*

1. What aspects of diversity, inclusion and equity are prioritized in your organization's training program?
2. How can training opportunities be made more accessible to job candidates from underrepresented communities?
3. Does your organization collaborate with other organizations for diversity, equity and inclusion related issues? If yes, what kind of collaborations exist?
4. How can collaborations with other organizations for diversity, equity and inclusion be strengthened?

Section 4 | DEI Hiring | *The next few questions ask about your organization's* ***hiring related*** *diversity, inclusion and equity (DEI) practices.*

1. How does your organization communicate and conduct outreach towards underrepresented groups during the hiring process?
2. What inclusive hiring practices does your organization implement?
3. Are there any employee recruitment programs that have been successful for enhancing diversity, equity and inclusion in your organization? Why were they successful?

4. Are there any employee recruitment programs that have been unsuccessful for enhancing diversity, equity and inclusion in your organization? Why were they unsuccessful?

Section 5 | DEI Viewpoint | *The next few questions **ask your opinion** on diversity, inclusion and equity (DEI) practices in the water sector*

1. In your opinion, what is the most important aspect to promote diversity, equity and inclusion in the water sector?
2. What role should the public sector/government play to promote diversity, equity and inclusion in the water sector?
3. What changes would you recommend relating to diversity, equity and inclusion on part of the public sector?

9.2 List of Affiliated Organizations of Workshop and Survey Participants

- Moulton Niguel Water District
- Inland Empire Utilities Agency
- Western Municipal Water District of Riverside County
- California Water Institute at Fresno State
- California State University, Fresno, and Clovis Community College
- California Polytechnic State University
- University of California Merced
- San Jose State University
- CSUSB
- UCSD
- UCR
- Palomar College Water Technology
- Generation: NOW!
- Environmental Protection Information Center (EPIC)
- The River Project

- Natural Resources Defense Council (NRDC)
- Monterey Bay Aquarium Research Institute
- Metropolitan Water District of Southern California
- Orange County Coastkeeper
- Water Education for Latino Leaders
- Municipal Water District of Orange County (MWDOC)
- Water Energy Education Alliance (WEEA)
- Los Vaqueros Reservoir Joint Powers Authority
- Central Valley Regional Water Quality Control Board
- CA Department of Water Resources
- Ventura River Water District
- Alison Loukeh & Associates
- Eastern Municipal Water District
- Sweetwater Authority
- Coachella Valley Water District
- Water Replenishment District
- West Basin Municipal Water District
- Center for Water Studies at Cuyamaca College

9.3 Workshop Main Session - Questions, Comments, and Answers

*****Note: The blue text is our revised version of the participants' and keynote speakers' original comments.

Participant question: At what point in your program do you introduce careers?

Tsai: The career aspects come in with the community partnerships. Through community partnerships, students can explore different career options they have never considered or heard about. (Community partnerships allow students to explore various career options.)

Participant Q: What are the guiding principles you communicate to your students when setting up these programs? Is there a common framework for everyone to operate in?

Tsai: This issue is part of my current research. We are currently developing the framework and guiding principles for climate education. Some of the design principles we selected while designing our curriculum included addressing uncertainty, investigating social, political, and cultural dimensions, attending to the issue of geographic or spatial scale, addressing personal emotions like climate anxiety, and being able to foster active hope by taking people's concerns and developing action-oriented solutions to address them. (One aspect of my current research is developing the framework and guiding principles for climate

education. For instance, some design principles we used while designing our curriculum address uncertainty and investigate social, political, and cultural dimensions.)

Mas: Our guiding principles come from creating the career pathways themselves. We focus on having authentic experiences for the kids. These are workplace relationships. Of all the things that are most important to us, students interact with adults in water or energy and understand authentic experiences in the workplace. (Our guiding principles come from creating career pathways that focus on creating authentic experiences for the kids. These workplace relationships are significant because they allow students to interact with adults in water or energy. As a result, it will enable them to understand authentic experiences in the workplace.)

Comments and Participant Q: Complexity is the enemy of equity, and water can be incredibly complex. I appreciate the initiatives that help break down these approaches' interconnections. This is needed to build a diverse pipeline of talent in water. For so long, water has been characterized by an insular network of people; you only know about water if you know someone who has worked in the industry. There's this saying, particularly in underrepresented communities, that 'you can't be what you can't see.' My daughters remind me that water is boring…Are there any innovative ways to communicate or mechanisms that you guys are communicating with that are getting results in terms of generating interest and awareness in water? (Complexity is the enemy of equity, and the water industry is incredibly complex. I appreciate the initiatives that help break down these approaches, as it is needed to cultivate a diverse pool of talent that can be funneled into the water industry. For a long time, the water sector has been an insular network of people, and the only way for someone to know about the industry is to have personal connections with individuals in the industry. An important question is: are there any innovative methods of communication that are successful at generating interest and awareness of the water industry?)

Solorio: Programs that pick a specific grade level or age group and have a significant event, like a yearly festival, that brings everybody into the loop are useful. An issue with other programs that are too selective with their outreach is that they need to engage a larger group of people in the discussion around water, for example. Children's festivals are excellent; general outreach programs with cool acronyms reach groups of all ages but focus on young people. Most young people today are enclosed by the internet, so when they have the chance to see something in person, like a watershed or the way water percolates, it is extremely insightful. (One way to generate interest and awareness in the water industry is to create interactive programs focused on a specific grade level or age group. The problem with other programs is their inability to reach a broad audience. While fun programs like festivals are excellent, general outreach programs with eye-catching acronyms are particularly appealing to young people. In addition, since young people are so connected to the internet, seeing something like a watershed in person can be highly insightful.)

Mas: We are interested in equipping young women with skills in STEM. That's the first place we have to start. In the Women in Water groups I participated in, they reference that they would love to see women in leadership. I think that provides at least an initial interest with young

girls, middle school and high school kids. (An excellent place to start is equipping young women with skills in STEM. For instance, the Women in Water groups I participated in mentioned that they would love to see women in leadership roles. After all, providing at least an initial interest with young girls and middle and high school students can go a long way.)

Tsai: There are two parts. One is a community partnership, inviting guest speakers to the classroom to allow them to inspire and engage with students about their work and internship opportunities. The other part is connecting the learning process about water with the real world to make it easier for students to understand the importance of water. (There are two parts. First, inviting guest speakers to classrooms can allow them to interact with students and share information about their work and internship opportunities through community partnerships. Second, establishing a connection between scientific processes and real-world situations can make it easier for students to understand the importance of having a consistent water supply.)

Participant Q: What drove the limitation on the list of types of careers that are necessary in the water sector?

Mas: I can't answer it because I don't know. But one of our workshop participants knows more about that study (Blue and Green) than I do.

Comment from participant mentioned by Susan Mas: When we look at water generally, we have over 200 jobs identified that a person can step into. I've worked in the water sector for 16 years, and I can tell you that almost everyone in the industry did not plan on working in it because we haven't done a great job advertising these jobs or making people aware. We need to do a better job because we are in a new era where a third of our workforce is getting ready to retire or will retire over the next ten years. When we started this study, we were told that 200 jobs were too many and that we should focus on identifying 8 mission-critical jobs in the industry. To do this, we brought in advisors from Bay Works, IE Works, San Diego County Water Authority and Affiliates, Orange County Water Providers, and Metropolitan. (This is due to the lack of awareness around these jobs, which needs to be addressed as soon as possible due to the employment gap: one-third of the workforce is getting ready for retirement or retiring over the next ten years. At the beginning of this study, we were told to identify eight mission-critical jobs in the industry instead of focusing on 200 jobs that a candidate could apply for. To do this, we brought outside help from various organizations, including Bay Work, IE Works, San Diego County Water Authority and Affiliates, Orange County Water Providers, and Metropolitan.)

Participant Q: Do the speakers have thoughts and ways to address inequities in our programming aimed at addressing DEI in water? For example, underrepresented groups in the water sector may need more means or resources to attend some of these water leadership programs.

Solorio: It is important to sometimes do broad-base stuff so that no one gets missed. I always encourage organizations to go where the people are, not to make them go to them. Go to the neighborhood association meetings and community centers; that is where people are, get

an interpreter, and go out there. For young people, water isn't always the most attractive work. Still, these are environmental jobs, and young people are exceptionally environmentally aware, so we need to talk about that because it will get their attention. One reason it is crucial to have diversity in these workforces is because it builds public trust. (It is important to create programs that appeal to a broad audience as it ensures that as many people as possible are included. I always encourage organizations to travel to where the people are by attending neighborhood association meetings and the community center with an interpreter. While working in the water sector is not the most attractive job for young people, emphasizing its status as an environmental job can help attract young people who are environmentally aware. Creating a more diverse workforce can help build public trust in the industry.)

Mas: I have not done much thinking on DEI because we believe that to address the issues of DEI, you need a quality K-12 education. It's almost a closed door for some of the kids and the families we work with; they don't even consider these jobs for their daughters or themselves if they are young women. Our whole focus is providing quality K-12 education to make our kids employable and to have all the advantages of knowing they have the skills, knowledge, experience, and social capital they can compete for any job. (I have not thought much about DEI because to" address the issues of DEI, students need to receive a quality K-12 education. Some kids and families we work with do not consider water-related jobs an option because of pre-existing stereotypes surrounding women in the workforce. Providing high-quality and enjoyable K-12 education to our kids allows them to obtain the necessary skills, experience, and social capital to be capable in the job market.)

Tsai: It is essential to provide teachers and students with the opportunity to learn about options. We don't know what we don't know, but when you give us the chance to learn, we can share that with our students. (It is essential to provide teachers and students with the opportunity to learn about job options.)

Comments and Qs from participants: The comments and questions made earlier are intriguing, but I am concerned because we are on this in regards to DEI, and my simple observation when it comes to DEI is when you look at an industry, you want to see somebody who looks like you. And, I look at who's on this panel now, and there's only one that looks like me, and that's me. And so you ask the question from Tiffany's statistics, the number of people retiring, who are they? The other question is, why is this industry a secret industry? It is primarily because the retiring individuals are recruiting those who look like them–their family and children-to keep this industry within their circle. These occupations are usually life appointments so there is rarely the opportunity for someone to break the barriers of DEI. Those are the topics that need to be addressed and discussed. The programs are great, but it's the leadership of those within their ethnic background that you need to get in and talk to the community to address DEI. (While the comments and questions from earlier are intriguing, I am concerned about our progress regarding DEI because when you look at an industry, you want to see somebody that looks like you. When I look at this panel, only one person looks like me, and it is me. So, when you look at the statistics from Tiffany's question, who are they when we discuss the number of people retiring? My other question is, why is this industry a secret industry? The answer to

these questions is this: the retiring individuals are recruiting those who look like them, such as their family and children, to keep this industry within their circle. Usually, appointments to these occupations are life-long positions, so there is rarely the opportunity for someone to break the barriers of DEI. Topics like these need to be addressed and discussed. Even though the programs have a great foundation, you must establish connections with leaders from different ethnic backgrounds and get more involved in the community to address DEI.).

Comments from Participant: The students being educated about the environment in K-12 don't look like David Muse or myself. Why can't we break past the barriers facing DEI? Because we are not invited to these spaces of discussion at the table. Instead, we are invited to participate at lower levels. I am appointed to 3 water boards. You guys need to look at who your messengers are because it matters to the community and those of us who are older and paying the bills, not just younger people and students. The people who need these jobs do not even know about them, and if all you do is reach out to university programs, that is a privilege–how can you enroll in a program if you don't know about it? Go back to ensuring that you have the voices of people from the community being served. The people most impacted need to have a voice. (The students being educated about the environment don't look similar to us. We can not break the barriers facing DEI if we are only invited to participate in lower-level discussions. The demographic of the current leaders can directly affect the groups of people they tend to hire. The community includes individuals of all ages, not just young people and students. The people who will benefit the most from these jobs are unaware of said opportunities; if you only reach out to university programs, you only cater to those privileged enough to receive a college education. You need to ensure that everyone's voices are heard, especially those impacted the most by water issues.)

9.4 Detailed Summary of the Breakout Room Discussions

Breakout room #1

Identified DEI Issues in the water sector

Systemic exclusion A recurring theme identified by participants was the systemic exclusion that continues to hinder DEI progress in the water sector. Although DEI initiatives in the industry have become increasingly prominent, participants noted that these efforts are often diluted. Rather than focusing on individuals already familiar with the industry yet categorized as marginalized, addressing the needs of those genuinely excluded is crucial. Specifically, Black and Brown communities eager to work in the water sector frequently remain uninformed of available job opportunities. This lack of outreach to these communities, combined with widespread public unawareness of the career opportunities in the industry, exacerbates the challenge of attracting new talent and advancing DEI efforts.

Workplace culture and retention Participants also identified workplace culture as a critical factor impacting DEI efforts. While progress has been made in hiring candidates from diverse backgrounds, there is still a significant gap in creating an inclusive culture that supports the

retention and success of these employees. Microaggressions and subtle slights, particularly toward women of color, were cited as common obstacles. For instance, one participant's anecdotes reveal that women of color in positions of power are often ignored by their subordinates or disregarded compared to their white counterparts. Language within the organization was highlighted as an area requiring attention, particularly language perpetuating stereotypes and exclusion. For instance, the tendency to associate Black and Brown communities with poverty reinforces harmful assumptions, even though "poverty has no color."

Representation and decision-making power Another emerging theme was the lack of diverse representation in leadership and decision-making positions within water agencies and governmental bodies. Participants emphasized the disparity between the demographics affected by environmental pollutants and those in positions of authority making the decisions that impact these communities. Additionally, participants noted that women - particularly women of color from the nonprofit sector - are often excluded from opportunities to share their stories and the changes they have driven within the industry. Despite their valuable contributions, these women are seldom invited to speaking panels, highlighting the lack of diverse representation in the sector.

Suggested best institutional practices and solutions

Leading with equity One of the most prominent solutions discussed for addressing DEI issues in the water sector is prioritizing equity as a fundamental practice. Participants emphasized that DEI will be naturally followed as organizations establish structures and policies that ensure all employees are supported and given equal opportunities to succeed. This equity-first approach promotes the creation of environments where diverse talent can thrive, shifting the focus from simply hiring a diverse workforce to fostering an inclusive culture that supports the long-term success of all employees.

Elevating role models and success stories Another critical practice involves showcasing successful models within the water industry, particularly those led by women in the nonprofit sector. Participants stressed the importance of drawing attention to these examples at industry events and speaking panels to inspire systematic change. Women-led nonprofits, especially those prioritizing equity and inclusion, can serve as valuable models for the entire industry. Highlighting these organizations can provide insights into creating supportive workplace cultures and promoting adopting best practices industry-wide.

Enhancing the industry's appeal The discussion revealed differing views on how to make the water industry more attractive to prospective job candidates. Some argue that the sector lacks the allure of more glamorous fields like law or medicine, which makes recruitment challenging. However, others countered that the water industry's true appeal lies in the opportunity to make meaningful contributions to society. Since individuals often overlook the significance of the water industry in comparison to other fields, some participants suggested that the water industry should emphasize the substantial impact individuals can have on their communities through various career roles offered by the sector, such as attorneys, water board directors, or

scientists. They stressed that fulfillment in these careers derives not primarily from the sector's appeal but rather from their positive societal impact.

The importance of mentorship Mentorship was also highlighted as a crucial strategy for addressing DEI issues and fostering talent in the water sector. Personal stories underscored mentorship's vital role in inspiring young people, especially those from underrepresented backgrounds, to pursue careers in science and water-related fields. The water industry's appeal may be debated, but there is widespread agreement on the importance of mentorship in building networks, sharing knowledge, and encouraging self-confidence. Mentoring can guide individuals toward fulfilling careers and help cultivate the next generation of leaders who can make a lasting difference in the industry.

Shifting the hiring process mindset Participants discussed the need for a shift in the mindset or attitude of hiring personnel within the water industry. It was suggested that employers should enter interviews with the intent to hire candidates rather than seeking reasons to disqualify them. This approach would create a more inclusive environment for potential employees, especially those from marginalized communities who are often overlooked in traditional hiring processes. By emphasizing how candidates can add value to the organization rather than highlighting potential flaws, the water industry can better offer opportunities to those who have been historically marginalized, fostering a more inclusive and fair environment.

Honest conversations about DEI Lastly, participants underscored the need for honest, although challenging, conversations about DEI in the workplace. These discussions are essential to fostering a culture that supports and sustains long-term DEI change in the industry. This can include individuals sharing their personal experiences and anecdotes, addressing misunderstandings through establishing a safe environment for vulnerability, and exploring uncomfortable subjects, such as privilege and accountability. By confronting complex topics and actively engaging in dialogue, the sector can continue to push toward creating an environment that genuinely values DEI at every level.

Breakout Room #2

Identified DEI issues in the water sector

Leadership The role of leadership in fostering DEI in the workplace is a critical concern for all industries. Cultivating a DEI culture requires the commitment of an organization’s leadership (Thibeaux et al., 2006; Kiradoo, 2022; Mackenzie & Wehner, 2023). According to a participant, achieving DEI goals requires a systematic approach beyond merely hiring people from various backgrounds; it requires comprehensive strategies, including recruiting, retaining, and developing diverse talent (Kiradoo, 2022). Effective leadership drives an organization’s cultural vision toward sustainable DEI programming (Stanley et al., 2019). There is no consensus on the most effective leadership styles for advancing DEI initiatives. Researchers argue that to achieve DEI, top-level managers should embrace transformational leadership styles, which not only inspire others to promote DEI but also foster an environment of empathy and collaboration

(Burn, 1978; Cooper et al., 2023). Transformational leadership employs a higher moral development framework by attending to the individual needs of employees while focusing on profits and workplace morale (Cooper et al., 2023). Although some studies have found no compelling evidence that gender is more associated with transformational leadership, women leaders exhibit more enabling behavior than their male counterparts (Brandt & Laiho, 2013). This includes promoting open communication and prioritizing the development of their team members. Drawing from their own experiences, diverse women leaders will likely diverse women in cultivating inclusive environments that embrace multiple diverse perspectives.

Resources One aspect of the discussion was the importance of leadership's financial support in promoting DEI. Since the murder of George Floyd, business corporations in the U.S. have swiftly appointed Chief Diversity Officers (CDOs) over the past two years (Stanley et al., 2019). Although the motivation behind these actions remains debatable, billions of dollars have been donated to promote DEI (Cooper et al., 2023). Financial investment is crucial for fostering organizational initiatives, as illustrated by Edmans et al. (2023), who found that a solid financial position gives companies latitude in concentrating on DEI. However, budget is not the only important element to promote these initiatives. One participant mentioned The study also found that small, growing firms perform better in DEI due to their management's proximity to workers and their significant incentives to prioritize these initiatives, as human capital is crucial for attracting and retaining talented employees (Edmans et al., 2023). However, budgeting is an essential aspect of enhancing DEI in any organization.

Unconscious bias Despite heightened awareness of unconscious bias and discrimination in recent decades, meta-analyses have shown no evidence of a decline in discrimination against Black applicants in the labor market since the late 1980s. Additionally, there have been only slight declines in discrimination against Hispanic and Latino applicants (Quillian et al., 2017). A similar pattern is seen when examining the trends for implicit bias and discrimination based on gender. Based on the study's results, even high-ranking academic faculty members recommended more male candidates from STEM positions than female candidates (Moss-Racusin et al., 2012). Generally, unconscious bias is a common challenge in promoting DEI in hiring, as it frequently occurs unintentionally (Kiradoo, 2022). In order to address this issue, organizations should transition to using a more diverse and inclusive hiring process to build an equitable and representative workforce (Mor-Barak & Cherin, 1998; Dobbin & Kalev, 2016). This report will outline strategies promoting inclusive hiring in subsequent sections.

Suggested best institutional practices and solutions

The breakout room did not have enough time to address this question. Thus, this report will briefly summarize literature that provides suggestions relevant to the previously discussed issues. According to academic literature, promoting DEI in higher education and healthcare industries is well-known for successfully implementing initiatives and programs that promote it. While there may not be universal programs that the

Accountable leadership Multiple participants highlighted how management teams must support and execute DEI initiatives, such as implementing diversity training programs and

establishing a series of steps to ensure their effectiveness. Also, management teams should consider integrating those programs into their corporate-level strategy to stimulate effective managerial communication across tactical and operational levels (Thibeaux et al., 2006). Furthermore, top management teams are responsible for implementing DEI initiatives that align with their organization's core values. A leadership team must carefully make DEI plans, initiatives, and training programs with clear goals, objectives, indicators, and metrics. For instance, "transparent metrics allow stakeholders to hold top management accountable for outcomes" (Hirsh & Tomaskovic-Devey, 2020). They must guarantee the implementation of their DEI plans and hold individuals responsible for the success of those initiatives. Moreover, when feasible and necessary, an organization may consider establishing DEI offices, committees, or task forces to monitor the development and implementation of DEI plans. Organizations can also gather and analyze diversity data, such as tracking individual transitions to identify diversity issues related to recruitment, hiring, promotion, compensation, and retention (Hirsh & Tomaskovic-Devey, 2020).

Inclusive communication Effective communication is a crucial element of leadership in advancing DEI. It is important to monitor the extent to which leadership effectively communicates its expectations to promote DEI-oriented behaviors (Bell & Martin, 2012), given that employees can interpret the same directives differently (Vroom, 1964). Moreover, barriers still hinder DEI communication in culturally diverse organizations that require cross-cultural communication. For instance, differences in language, such as inappropriate jargon and slang, along with nonverbal cues like offensive gestures, can result in misunderstandings between people (Munter, 1993). Effectively communicating with people across various backgrounds presents inherent challenges for many managers (Capowski, 1996). To create a sense of inclusivity and perceived equality through accurate communication, top management teams must be more cognizant of cultural differences and communication barriers when engaging with employees from diverse backgrounds. A culture that encourages open communication across all levels of management could be beneficial as transparency fosters a sense of social equity.

Encourage leadership roles for underrepresented groups Organizations should encourage and support employees from underrepresented groups to take on leadership roles. Cooper et al. (2023) argued that organizations need to recognize their tendency to put individuals from underrepresented communities in leadership positions during the most challenging circumstances. Even when they attain leadership positions, they are often scrutinized more than their counterparts (Fitzsimmons & Callan, 2020)[14]. In addition, economic researchers found that the proportion of women in senior management, though not necessarily in CEO positions, is associated with increased DEI, according to the measurement metrics used in a study that investigated leading U.S. companies. This is likely due to female senior managers being more attuned to DEI issues and possessing the capacity to actively promote DEI within organizations (Edmans et al., 2023).

[14] This is referred to as a Glass Cliff in literature in which women and minorities are appointed or promoted to precarious leadership positions compared to their white male counterparts (Obenauer & Langer, 2019).

Partnerships It was also mentioned in the breakout rooms that it is important to make targeted outreach efforts to build a diverse pool of candidates (Avery & McKay, 2006). To enhance visibility, employers can collaborate with schools, community groups, and professional organizations serving underrepresented groups (Bond & Haynes, 2014). In addition to promoting a varied pool of candidates, organizations should invest in developing and maintaining a diverse talent pipeline to ensure a steady stream of candidates (Kiradoo, 2022). It is essential to offer internships that provide individuals from underrepresented groups with opportunities to gain experience and develop skills (Kiradoo, 2011). Moreover, it was also discussed how integrating insights and methodologies from other fields, such as the social sciences, engineering, and environmental studies, and implementing apprenticeships and mentorship programs can enhance DEI in the water sector (Kiradoo, 2011).

Inclusive hiring The language and structure used in job descriptions significantly impact the diversity of the candidate pool. One feasible and effective practice is removing biased language from job advertisements made by organizations (Gaucher et al., 2011). For example, descriptions should not contain gender-specific traits, as this may discourage specific candidates from applying (Lyness & Heilman, 2006). Moreover, establishing diverse hiring panels fosters inclusive recruitment by assembling interview teams that include representatives from underrepresented groups. (Braddy et al., 2006; Ployhart, 2006). Braddy et al. (2006) discovered that having racially diverse hiring panels resulted in more positive perceptions of the organization's diversity climate among applicants. Going beyond special training, organizations can implement blind hiring practices to overcome unconscious bias in the recruiting process. For instance, organizations should consider employing blind resume screening, with applicants' identification information such as name, gender, and address hidden in resumes (Åslund & Skans, 2012; Bohnet, Van Geen, & Bazerman, 2016).

Breakout Room #3

Identified DEI issues in the water sector

One prominent concern was the over-representation of engineering backgrounds, which hinders diversity and sidelines other crucial disciplines in water management. By heavily focusing on engineering, opportunities for a broader range of individuals who might bring diverse perspectives and skills to the sector are narrowed (Kane & Tomer, 2018). This narrow focus perpetuates a cycle in which similar types of people replace one another, limiting the diversity of thought and innovation. In other words, a lack of diversity can lead to solutions that fail to consider the needs of various communities, reducing the overall effectiveness of water management initiatives.

The effects of enhancing DEI in the water sector

One challenge is systemic biases in hiring practices that favor individuals from privileged backgrounds. The favored individuals in hiring are more likely to have access to education and professional networks in engineering, reinforcing the cycle of exclusion and homogeneity in the workforce (Baywork, 2017). Additionally, a lack of awareness and trust in nature-based

solutions among communities has hindered broader participation and interest in the water sector. As noted by one participant, more knowledge about stewarding nature-based projects is needed, particularly including Indigenous perspectives. Another participant emphasized that programs are often designed without considering the specific needs of marginalized communities, such as the lack of compensation for participation or supportive services like childcare. This oversight not only entrenches inequalities; it limits the sector's inclusivity and undermines the beneficial contributions that diverse perspectives can offer.

By including individuals from various backgrounds and disciplines, the water sector can adopt a more holistic approach, integrating engineering with social sciences and environmental stewardship (US Water Alliance, 2024). A multidisciplinary approach can lead to more effective and lasting solutions, promoting enhanced community involvement and trust. When communities see themselves represented in the workforce, they are more likely to trust and participate in water management initiatives, leading to better stewardship of natural resources. Moreover, enhancing DEI can yield significant economic and social benefits, particularly for marginalized communities. Equitable access to education and career opportunities in the water sector can empower these communities financially, improving their quality of life while contributing to the sector's overall economic growth and sustainability. The participants highlighted the importance of addressing DEI issues for fairness and the tangible benefits a more diverse workforce can bring to the sector. This breakout session provided valuable insights into how inclusive education, internships, networking opportunities, equitable hiring processes, supportive workplace culture, and progressive governmental policies—can foster a more diverse, equitable, and inclusive water sector.

Suggested best institutional practices and solutions

Inclusive education Education emerged as a critical area for reform, with participants emphasizing the need for programs that are inclusive and accessible to all communities. DEI principles should be integrated into the curriculum and scholarships for underrepresented students, along with partnerships with community organizations to raise awareness about career opportunities in the water sector (Kane & Tomer, 2018). In addition, one participant noted that cross-disciplinary approaches can enhance DEI in the water sector by integrating insights and methodologies from the social sciences, engineering, and environmental studies. The industry can break down barriers that limit diversity by making education more inclusive and multi-discipline-oriented.

Internships and apprenticeships The breakout rooms also emphasized providing internships and apprenticeships to individuals from diverse backgrounds to improve inclusivity in the water workforce. These programs should offer stipends to ensure that financial barriers do not prevent participation. Internships and apprenticeships provide hands-on experience and valuable networking opportunities crucial for career development (Baywork, 2017). They assist individuals from marginalized communities in navigating their careers in the water sector by providing valuable experiences and networking. Programs should connect newcomers with experienced professionals who can offer guidance and support to clarify the industry and increase accessibility for underrepresented groups (U.S. Water Alliance, 2024).

Organizational initiatives Organizations should reform and implement equitable hiring processes such as blind recruitment, setting diversity targets, and training new managers on unconscious bias. Additionally, creating clear pathways for career advancement for underrepresented employees is essential for long-term retention and growth within the sector (Kane & Tomer, 2018). A supportive workplace culture is also vital for retaining a diverse workforce, as it fosters an inclusive environment for all employees to feel valued and respected. This can be accomplished through implementing anti-discrimination policies, providing diversity training, and promoting work-life balance with flexible working arrangements and supportive services like access to healthcare, mental health resources, and childcare.

Governmental Policies backed by external funding should mandate equitable access to education and career opportunities. Moreover, the breakout rooms highlighted how policies must ensure marginalized communities are involved in decision-making processes related to water management. Policies that motivate community engagement in water management are vital for enhancing DEI, as they ensure that the unique needs of different communities receive the resources and other support needed to participate effectively (US Water Alliance, 2024).

Specific examples of cases cited by participants

Los Angeles County or other case (from Melanie, Breakout Room 3)

Best practices from contextual localization, local knowledge for disadvantaged communities, and community engagement have been pivotal to improving water infrastructure in California. For instance, improving the conversion work of septic systems in Menifee required community involvement and engagement to obtain permission to access properties dispersed throughout the community physically.

In the Santa Ana River Watershed case, the University of California, Irvine, and SAWPA (Santa Ana Watershed Project Authority), along with elected officials, tribal communities, and water agencies, collaborated on a water data governance project. It is crucial to assess, analyze, and generate ethnographic water needs data to understand the specific contexts of the areas envisioned by different communities. According to the report titled “Community Water Experiences,” the perspectives of “underrepresented and overburdened” communities are challenging to obtain due to issues like language barriers. To better understand the different imaginaries of tap water and water systems constructed by the communities, the report proposes “localized concerns” garnered by reinforced outreach and communication between the communities and water agencies in the relevant area. However, they would have to pay more attention to participatory planning and best practices co-produced by the agencies and recent immigrants in the region.

Likewise, in the Quail Valley community, as the city of Menifee, a localized project initiated and implemented by the Eastern Municipal Water District in 2017 has been involved and funded by different agencies[15]. The water infrastructure project, which converted the septic tank systems of wastewater storage and conveyance, which caused frequent leakage during storms, has been transformed into sewer systems. Community meetings are crucial in building

[15] Such as the State Water Resources Control Board, the Santa Ana Watershed Project Authority, and the Santa Ana Regional Water Quality Control Board

trust for community engagement by providing engaging points and spaces. Building trust consistently between the target community leadership (e.g., local officials and community leaders), who are second-language learners, and the agencies have finally been paid off with significantly reduced wastewater bills. The challenging part of this project was the human interactions and relationships, not the engineering part. (Water Education Foundation, 2021, pp. 27-34.)

The City of Maywood (LA county) case shows how contestation of contextualization between localities and federal environment agencies can lead to a mutual understanding between the two parties. The residents of Maywood are mostly Latinos and immigrants living below the poverty line since the average household income is approximately $36,000 (Water Education Foundation, 2021, p. 8)[16]. The tap water in this small-sized community is discolored by manganese, and improving its quality has been a struggle. Despite concerns about public health, the community has been unable to secure external funding for water quality improvement, as federal agencies have not confirmed any harm to the residents. Given the economy of scale associated with the project, the self-investment could jeopardize the financial sustainability of water systems in Maywood. The community's utility, Maywood Mutual Water Company, could not stop the water delivery system from dispensing the “brown, tainted water.” In 2018, the infrastructure project to address iron and manganese removal from the water system and prevent tap water oxidation began with the State Department's support in understanding local concerns and facilitating funding from the State Water Resources Control Board. The community engagement has been supported by the leading water agency and relevant California State departments, who have a shared understanding of the local context to address the issue (Water Education Foundation, 2021, pp. 27-34).

Breakout Room #4

Identified DEI issues in the water sector

One significant challenge highlighted in the breakout rooms was the lack of diversity in the applicant pool for water-related positions. One participant emphasized the difficulty in filling open board positions with diverse candidates, noting that these roles often require greater compensation to reflect the lengthy time commitments. Another participant highlighted the challenge of targeting diverse outlets for job postings to attract a wider range of applicants, pointing out that higher-level degree requirements can further narrow the applicant pool(Kane & Tomer, 2018). Factors contributing to these issues include systemic biases in hiring practices, which favor individuals with access to advanced education and professional networks (Butler & Adamowski, 2015). Moreover, a lack of awareness about the diversity of roles within the water sector leads to a limited perception of opportunities.

The effects of enhancing DEI in the water sector

One participant highlighted the importance of including diverse perspectives in leadership roles. This would enrich decision-making and lead to more equitable outcomes for all

[16] This is “less than 80 percent of the statewide average” for household income (Water Education Foundation, 2021, p. 8).

communities involved. A diverse workforce can better address the needs of marginalized communities, ensuring that water supply for cities, agriculture, and the environment is considered holistically.

It was also noted that diverse teams are more successful and achieve more significant results as they bring together various backgrounds and cultures. This diversity in thought and experience can lead to more effective communication and problem-solving, especially in community engagement. One participant shared an instance where a board member's ability to communicate in Spanish significantly improved public engagement, demonstrating the value of language diversity in lowering communication barriers. Furthermore, there is an opportunity to raise awareness about the importance of water and its management through community involvement. Events like water festivals and educational tools like "purple pipes" (used to signify repurposed water) can engage younger generations and foster a sense of responsibility toward sustainable water use (Bushman & Parker., 2014).

Suggested best institutional practices and solutions

Suggestions included bringing more diverse individuals into leadership roles and providing ongoing education for all stakeholders about the importance of diversity. Additionally, changing the perception of the water sector was also emphasized, highlighting the wide-reaching and dynamic nature of water management to make it more appealing. The role of community involvement and education in promoting DEI was discussed, as well as hosting water festivals and other community-based events to engage the public and raise awareness about the importance of water management. Providing compensation and supportive services for those participating in DEI initiatives was suggested to ensure meaningful participation from underrepresented groups (Akhmouch & Clavreul, 2016). Moreover, it's essential to carefully review the terminology and language used in DEI efforts to avoid perpetuating systemic oppression. One participant stressed the importance of advocating for Indigenous stewardship and ensuring that initiatives are framed in a way that empowers rather than marginalizes communities (Scarlett et al., 2021).