

FIGHTING THE LABOUR SHORTAGE IN THE WATER INDUSTRY: ATTRACTING AND RETAINING IMMIGRANTS AND WOMEN

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ABSTRACT

Aotearoa is facing a significant labour shortage in the water sector in 2022, with thousands of skilled workers needed in the next 30 years to achieve safe drinking water standards across the country (Water New Zealand, 2022). Contributing factors to this shortage include COVID-related border closures and corresponding adjustments to New Zealand's immigration settings during this time. These border closures have had the effect of preventing skilled migrants in the water sector from entering New Zealand and joining the labour market in this country for more than two years. Another contributing factor has been the loss of New Zealand based water sector labour to other jurisdictions, such as Australia and the UK, through emigration.

To date, there has been much discussion in the media about potential government initiatives to address the current generalised workforce shortage in New Zealand. The water sector has also published a number of reports on labour shortages, such as *Mahere Whakamahinga: Workforce Activation Strategy* (Waihanga Ara Rau, 2022), but the literature has not yet materially focused on the retention of women and immigrants in the water sector.

As of early 2022, demand for labour in Aotearoa was record high (New Zealand Institute of Economic Research, 2022). Government reforms of immigration policies, along with the re-opening of borders, should contribute to a greater inflow of specialised labour. However, granting visas and getting skilled workers into the country is just the first step. There is significant competition within the market, with employers vying to hire professionals when they arrive onshore. In addition, immigrants often experience a painful transition period when they start their first job in New Zealand and many employers may be poorly equipped to provide the level of support needed. Once employees are settled, retention becomes the main concern, as organisations risk losing new staff to other national industries or countries.

Attracting and retaining female workers in the water market – and in the engineering, construction, and infrastructure sectors more generally – is another ongoing issue. There is an increasing number of programmes to encourage girls to study engineering related fields in New Zealand; however, the water industry is still strongly male-dominated. Moreover, there are documented challenges in retaining women who decide to work in this field. For example, Devonshire and Davidson (2020) demonstrate that women are more likely than men to leave

engineering early in their careers. All of these factors contribute to the current workforce shortage.

This paper explores some issues faced by women and immigrants and their experiences working in the New Zealand water industry. The paper also outlines a range of initiatives that could be trialled to attract and retain these key demographic groups, and to create environments in which a diverse range of people could thrive. The discussion draws on insights from quantitative and qualitative research with individual practitioners, and national and international studies and initiatives.

KEYWORDS

Labour shortage, immigration, skilled migrants, women, women in engineering, diversity, water industry, water reform

PRESENTER PROFILE

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1. INTRODUCTION

New Zealand is currently facing what has been called 'one of the worst workforce shortages in its history' (New Zealand Institute of Economic Research, 2022). Deloitte Access Economics (2021) estimated that thousands of additional workers will be needed to deliver and run the Water Reform infrastructure over the next 30 years. Bringing an increased number of skilled migrants to the country is considered to be part of the solution to address this expected need.

The New Zealand borders were closed to most skilled migrants from March 2020 to July 2022, when the borders were fully reopened. Processing of offshore skilled migrant residency visas was put on hold during this time and has only been recently resumed in Q3 2022 by Immigration New Zealand, with most of these visas expected to be processed within 12 months (Immigration New Zealand, 2022). A new initiative intended to accelerate the process of bringing a specialised workforce to the country is the new Accredited Employer Work Visa. It is believed that the New Zealand Government will introduce additional initiatives to attract more skilled migrants onshore.

When skilled migrants arrive in New Zealand and begin new employment, they face immigration-related challenges in addition to the usual challenges associated with starting a new job. Many companies and organisations may not be well-equipped to provide the required support to newly arrived immigrants and, as a result, new talent may be lost to other industries in Aotearoa or foreign markets, including Australia and the UK.

Attracting and retaining women in the New Zealand water sector also presents challenges. Despite a national women's employment rate of 64.1% as of June 2022, the under-representation of women in the New Zealand water industry

persists, with women making up only 21% of Water NZ members in 2019 (Stats NZ, 2022; Foster & Brockbank, 2020).

This paper explores some of the challenges faced by women and immigrants working in the water industry and proposes a range of initiatives and strategies that could be put in place to help address these. The aim is to create more diverse and equitable working environments and, as a consequence, improve the attractiveness of the water industry and retention of these key demographic groups. The discussions presented in this paper draw on insights from quantitative and qualitative surveys with immigrants and women working in the New Zealand water industry, as well as national and international studies and initiatives.

2. METHODOLOGY

A quantitative and qualitative survey approach was adopted to identify and understand the experiences of immigrants and women working in the New Zealand water industry. Data was collected using three short questionnaires: one for immigrants who identify as women, one for immigrants who do not identify as women, and one for people who identify as women but are not immigrants. The criterion to respond to the survey as an immigrant was having moved to New Zealand at 18 years old or older. This aimed to focus the study on people who came to Aotearoa as skilled migrants or who came to study and then work. Survey questions were prepared based on a literature review on factors affecting the workplace integration of immigrants and women in New Zealand and abroad and initiatives to address these. Open-ended questions were included to identify additional challenges or initiatives not captured in the questionnaires.

The surveys were published on LinkedIn and distributed by email and LinkedIn messages to professionals in the water field, including drinking water, wastewater, and stormwater. The goal was to reach as many immigrants and women working in this field as possible and collect a representative sample of people working for consultants, contractors, Taumata Arowai, councils, water organisations (Watercare and Wellington Water), and others.

109 participants answered the survey – 32 immigrants who do not identify as women, 26 women immigrants, and 51 women who are not immigrants. Quantitative and qualitative data were analysed to establish trends and patterns. The results of this study are presented in the sections below.

3. CHALLENGES FACED BY IMMIGRANTS

In the literature, the integration of immigrants is seen as a two-way adaptation process involving rights and responsibilities of both newcomers and the receiving society (Henderson, 2004). Thus, the success of the integration process depends on the individual choices of immigrants, as well as on the level of receptiveness of the host society and its policies (Esses, et al., 2016).

However, some studies revealed that immigrants are expected to assume all the responsibility of assimilating into the host workplace culture and adapting their behaviour, values, and beliefs, while native-born employees do not feel any responsibility in the integration process (Malik & Manroop, 2017).

Participants of this study were asked to rate their level of agreement with different statements to understand how much support they feel they are receiving while working in the water field in New Zealand. Table 1 presents the results.

Table 1 Support for the workplace integration of immigrants in the New Zealand water industry

Statement	(1) Completely disagree or (2) Partially disagree	(3) Neutral	(4) Partially agree or (2) Completely agree
My manager is culturally aware	5%	5%	90%
People with leadership roles in my company/organisation are culturally aware	9%	10%	81%
My company/organisation promotes diversity and cultural synergy in the workplace	9%	16%	76%
There is enough representation of different cultures in leadership roles in my company/organisation	29%	17%	53%
People can easily connect to other coworkers on a personal level and make friends at work in my company/organisation if they want to	10%	14%	76%
When I started this job, I received enough support from my company/organisation to help with my integration in the workplace	19%	22%	59%

Additionally, participants were asked to identify the difficulties they had experienced in workplaces in the water field. The results are shown in Table 2.

Table 2 Difficulties faced by immigrants in workplaces in the New Zealand water industry

Difficulty	Percentage of Participants who have experienced this difficulty
Difficulties with English - either speaking, listening, writing, or reading	29%
Lack of or limited local experience	60%
Lack of understanding of local legislation	59%
Not knowing how to use local software relevant to your role (e.g., Revit)	16%
Coworkers in New Zealand have a different communication style and sense of humour in comparison to coworkers in your country	60%
Difficulties making friends at work	24%
Other	14%
None	5%

These main results, which are presented in the tables above, as well as other survey findings, are discussed in the following sections.

3.1. CULTURAL BEHAVIOUR DIFFERENCES

A critical obstacle perceived by participants in their professional integration into the New Zealand water industry was cultural differences in the workplace. 60% of the participants have experienced difficulties with different communication styles and the sense of humour of coworkers, and 55% responded that they had changed their cultural behaviours or identity to fit better in the workplace.

The results match similar studies on this topic. The New Kiwis Employer's Survey 2021 noted that 21% of respondent employers think that 'Not understanding New Zealand workplace culture/environment' is the most likely challenge immigrants workers face when starting work, while 16% believe it is 'Cultural differences with other colleagues' (Auckland Business Chamber, 2021). Likewise, Rajendran et al. (2017) stated that cultural challenges such as different attitudes towards work and norms around socialising and communicating with coworkers hinder immigrant workplace integration.

3.2. LIMITED LOCAL EXPERIENCE

'Lack of or limited local experience' and 'Lack of understanding of local legislation' were problems experienced by 60% and 59% of the participants, respectively. 'Not knowing how to use local software relevant for the role' was a problem reported by only 16% of the participants. This supports the observations of Colic-Peisker (2011), who noted that limited local experience, lack of hands-on exposure to local workplaces, and lack of local references hinder employment outcomes for immigrants.

3.3. CONNECTION TO COWORKERS

Socialising outside of work with colleagues can be considered normal behaviour and expected by immigrants based on their home country experience. Understanding this may not be the case in workplaces in their new country may make the integration more difficult (Rajendran et al., 2017).

However, 76% of participants in this study completely or partially agree that 'People can easily connect to other coworkers on a personal level and make friends at work in their organisations if they want to', and only 24% of the respondents have experienced difficulties making friends at work. These results indicate that immigrants in the New Zealand water industry may be finding it easy or relatively easy connecting with others in the workplace.

3.4. SUPPORT FOR INTEGRATION

59% of the respondents completely or partially agree that they received enough support from their companies or organisations to assist with workplace integration when they started working in the New Zealand water industry. Although these are reasonable results, considering this is a critical moment when immigrants are trying to integrate not only into the workplace but also into the host society, ensuring all immigrants have access to enough support would be important to prevent them from leaving the water industry or even the country.

Based on the assumption that job opportunities strongly influence the decision to migrate as a skilled worker, Rajendran et al. (2017) stated that workplace support is essential to the integration of newly-arrived skilled migrants, as their profession is the main pillar that gives them an identity, a sense of belonging, status, and self-worth.

3.5. BULLYING AND DISCRIMINATION

24% of the respondents have been a target of bullying, racism, or discrimination for being a foreigner in the New Zealand water field. 64% of these were related to the immigrant's oral language difficulties or accent, 50% to seeing the immigrant as inferior, and 29% to the immigrants' writing skills. Additionally, 35.4% of the respondents of a Diversity Works NZ study indicated that instances of bullying and harassment had been reported in their organisations over the previous 12 months (Kent et al., 2021). 12.6% of respondents of this study also claimed that migrants born in a country where English is not the primary language are particularly vulnerable to bullying and harassment.

53% of participants in this study partially or completely believe they have fewer opportunities at work due to their identity as an immigrant. This result is consistent with a study by Ertorer et al. (2020), which indicated that a common issue voiced by immigrants is unequal treatment in the workplace. This study reported that managers would not consider immigrant workers' opinions despite their hard work and measurable productivity, favouring native workers.

3.6. PAY GAP

52% of participants in this study have felt native coworkers working at a similar level or role are better paid. Ertorer et al. (2020) also noted the presence of an income disparity between recent immigrants and local-based employees despite similar levels of education and work experience. While New Zealand has been making progress on this topic by reducing the ethnic pay gap over the past years, there is still a considerable pay gap affecting mainly ethnic minorities (Te Kawa Mataaho Public Service Commission, 2021).

3.7. DIVERSITY PROMOTION BY ORGANISATIONS

Ertorer et al. (2020) stated that culturally diverse working environments give immigrants a sense of integration, as they feel that they fit in and contribute by utilising their cultural capital. 76% of participants of this study partially or completely agree that their organisations promote diversity and cultural synergy in the workplace.

3.8. CULTURAL AWARENESS FROM LEADERSHIP ROLES

Ertorer et al. (2020) stated that immigrants need workplaces where they feel their cultural capital is valued throughout the organisational hierarchy to feel integrated. 90% of participants in this study partially or completely believe that their managers are culturally aware, and 81% that people with leadership roles are culturally aware. These results show that, in general, the New Zealand water industry seems to have culturally aware leaders. These can support immigrant integration by valuing and respecting individuals regardless of their ethnicities.

3.9. LANGUAGE BARRIERS

29% of the participants in this study have experienced difficulties with English in the workplace, either speaking, listening, writing or reading. The New Kiwis Employer's Survey stated that communication in English remains the foremost difficulty migrants face in the workplace with 37% of the respondents experiencing this issue, and most of the challenge being around understanding Kiwi slang and colloquial language (Auckland Business Chamber, 2021). Likewise, Ertorer et al. (2020) identified the use of everyday language (slang and jokes) as an area where immigrants lack cultural capital and that hinders workplace integration, despite their English proficiency.

3.10. UNDER-REPRESENTATION IN LEADERSHIP ROLES

Only 53% of participants in this study think there is enough representation of different cultures in leadership positions in their organisations. This matches the findings from Ertorer et al. (2020), which indicated the upper levels of hierarchy tend to be racially and ethnically homogeneous, despite the culturally diverse workplaces – this is perceived by immigrant workers as a sign of exclusion and segregation. Moreover, Rajendran et al. (2017) stated that diversity promotion is more visible if organisational leadership is also diverse and committed to diversity.

4. IMMIGRANTS LEAVING THE WATER INDUSTRY

When asked if they have considered leaving the New Zealand water industry, 48% of the survey participants answered 'yes'. Among the main reasons mentioned by the respondents were:

- Better salaries and opportunities in other industries in New Zealand,
- Better salaries and career progression abroad in countries like Australia,
- Lack of leadership and management support, and
- Bad company or organisation culture, including lack of inclusiveness and high workload.

5. CREATING GREAT WORKING ENVIRONMENTS FOR IMMIGRANTS

When investigating the employment of immigrants in New Zealand, North (2007) found that few companies or organisations at that time offered specific support to immigrants. In order to understand the best ways to assist immigrants, either with initiatives available to all employees or specifically designed to assist skilled migrants, the participants of this study were asked about a series of initiatives. Table 3 summarises the study results.

Table 3 *Initiatives to help integrate immigrants in the workplace in the New Zealand water industry*

Initiative	Have seen this initiative	(1) Not Important at all or (2) Not much important	(3) Neutral	(4) Important or (5) Very important
Training on local legislation/standards applicable to the job	43%	2%	3%	95%
Mentorship	64%	0%	7%	93%
Social events and networking opportunities sponsored by the company/organisation	79%	2%	12%	86%
Comprehensive company/organisation induction for new employees	62%	7%	7%	86%
Support and empathy from managers and coworkers	62%	2%	14%	84%
Having a buddy when starting working at the company/organisation	72%	7%	9%	84%
Training on practices that are specific to the water field in New Zealand (e.g., the most common water and wastewater treatments used)	0%	3%	14%	83%
Help with career planning	52%	0%	22%	78%
Company/organisation policies regarding bullying, discrimination, and racism	60%	7%	17%	76%
Self-sponsored social events and networking opportunities	52%	2%	24%	74%
Welcome tea for new employees	41%	10%	28%	62%
Training on software used in New Zealand that are required for the job (e.g., Revit)	33%	5%	36%	59%
English language training	19%	10%	33%	57%
A formal immigrant-integration programme (e.g., including modules on understanding the local workplace culture and culturally-appropriate social interactions)	22%	10%	33%	57%
Diversity committee	28%	19%	38%	43%

These initiatives are discussed in the following sections.

5.1. SPECIFIC TRAINING FOR IMMIGRANTS

The survey results indicate that holding specific training for immigrants is among the most important initiatives that companies or organisations could undertake to support immigrants.

Although 95% of the participants indicated that 'Training on local legislation/standards applicable to the job' would be 'important' or 'very important' to help immigrants integrate in the workplace, less than half of them have experienced this kind of training in the water industry. Training on practices that are specific to the New Zealand water field (e.g., the most common kinds of water and wastewater treatment used in the country), was rated as 'important' or 'very important' by 83% of the participants; however, none of the participants have experienced similar training. Less participants (59%) seem to find training on software used in New Zealand that is required for the job important. This may be justified by the fact that only a portion of the people working in the water field needs to use specific software in their day-to-day jobs.

Skilled migrants normally have at least an advanced level of English, as this is often required to get a visa that allows working or studying in New Zealand. This has been confirmed by 62% of the survey participants have arrived in New Zealand with an advanced or native level of English. Despite this, offering English language training to immigrants is still important, with more than half of the participants rating this kind of training as 'important' or 'very important' and just 19% experiencing it in their workplaces.

5.2. MENTORSHIP

In general, mentorship programs can include both programs specifically designed for immigrants and programs offered to all employees. Having a formal mentorship programme for immigrants and underrepresented groups has been proposed in multiple studies as a way to support their career development (Culture Amp, 2021; Rajendran et al., 2017).

93% of the survey participants believe mentorship is 'important' or 'very important' to support the integration of immigrants, and 64% have had access to mentorship opportunities. Considering how important mentorship seems to be for skilled migrants, employers that do not have enough resources to make such programs available should ensure their employees have access to external mentorship programs, such as the Water NZ Mentoring Programme.

Participants also find getting help with their career planning important, with 78% of people rating this initiative as 'important' or 'very important'. Help with career planning can be provided as part of a mentorship program, scheduled discussions with managers, or other initiatives. According to Culture Amp (2021), employees that talk about career growth with mentors feel more confident and comfortable doing so with their managers.

5.3. SOCIAL EVENTS

Both company-sponsored and self-sponsored social events were considered important by the participants, with 86% and 74% respectively finding these

events 'important' or 'very important' to help with the integration of immigrants in the workplace. The survey results indicate that most companies and organisations seem to be sponsoring social events and providing opportunities to participate in self-sponsored social events.

Ertorer et al. (2020) stated that developing relationships with coworkers, including superiors, facilitates the integration of immigrants in the workplace, creates a sense of belonging to the company or organisation, and improves performance, as it creates a safe environment to share information and ask questions. As many newly arrived skilled migrants do not have extensive connections outside of work, promoting social events in the workplace may not only facilitate their integration into the company or organisation but also into society (Rajendran et al., 2017).

5.4. INDUCTION OF NEW IMMIGRANT EMPLOYEES

Having a comprehensive induction process and a buddy when starting a new job were considered valuable initiatives by the respondents, being rated as 'important' or 'very important' by 86% and 84% of them, respectively. Holding welcome teas to new employees and having a formal immigrant-induction program were considered 'important' or 'very important' by more than half of the participants.

Ertorer et al. (2020) state that providing intercultural competency training to native and immigrant employees is important to avoid misunderstandings in the workplace and improve integration. Although offering training focused on understanding the local workplace culture and culturally-appropriate social interactions seems to be an effective strategy to facilitate the integration of immigrants in the workplace, only 22% of the study participants have encountered similar training in their current or past jobs.

5.5. GENERAL SUPPORT AND EMPATHY

It is well-known that diversity can benefit organisations, but only if the barriers among the different cultures can be overcome and cultural synergy is promoted in the workplace. In this context, it is expected that managers are empathetic, understand cultural differences, and promote cultural integration in the workplace (Rajendran et al., 2017). The importance of empathetic and supportive managers, supervisors, and coworkers was repeatedly mentioned by immigrants in a study by Rajendran et al. (2017) on the workplace integration of skilled migrants in Australia. Having an immigrant superior was reported to be particularly helpful.

These findings match the results of this study, as 84% of the participants rated having supportive and emphatic managers and coworkers as 'important' or 'very important'. Unfortunately, only 62% of the participants have experienced this support in their current or previous jobs in the water industry in New Zealand.

A study conducted by North (2007) found that only 9% of the participant companies and organisations that employed immigrants at that time coached or trained managers to work with immigrant employees. This suggests that many managers may not be equipped with the cultural competencies required to support skilled migrants, which may explain the study's results.

5.6. COMPANY POLICIES

82% of the companies and organisations from different fields that participated in the NZ Workplace Diversity Survey 2021 indicated they have a formal policy, program, or initiative in place against bullying and harassment; and 44% indicated they have an anti-bias policy in place (Kent, et al., 2021). In this same study, 27% of the organisations that reported incidents of bullying or harassment did not know if action had been taken in response to the incidents.

While having appropriate policies in place is a necessary first step to fighting bullying, discrimination, and bias in the workplace, they could be more effective with appropriate coaching on policies and their expectations, as well as accountability to uphold them. Policies should be in place not as a tick-box exercise but to drive real change and transform the culture of an organisation. In this context, 76% of the survey participants believe it is 'important' or 'very important' to have policies regarding bullying, discrimination, and racism in place; and 60% have seen this kind of policy in their workplaces.

5.7. DIVERSITY COMMITTEE

Diversity committees are often formed in companies to advance the representation of minorities and ensure equitable opportunities are available for all employees. According to Culture Amp (2021), having a diversity committee in place may be easy, but having a diversity strategic plan in place and focusing on high-impact efforts are required to create workplaces with more equity and inclusion. This may explain why less than half of the participants considered having a diversity committee 'important' or 'very important'. Furthermore, only 28% of the participants have seen diversity committees in their workplaces.

Many diversity committees organise events such as the celebration of the different cultures within a company. Although such events are important, the company's efforts shall not stop there. Celebrating the diversity of cultures in a company is not the same as enabling people from these backgrounds to feel a sense of belonging and inclusion, and experience a smooth and equitable integration into the workplace

5.8. OTHER COMPANY OR ORGANISATION INITIATIVES

When asked which other initiatives would be helpful to support immigrants' integration in the New Zealand water field, the main responses were:

- Help to apply for visas and understand visa processes and requirements,
- Clarity on salary bands and ensuring that salaries being offered to immigrants are compatible with the salaries of native employees in similar roles, and
- Offering Te Ao Māori training, including Māori views on water resources.

Another effective initiative is having diverse work environments and diverse representation in leadership positions (Ertorer, et al., 2020). According to Kent et al. (2021), the boards of many of New Zealand's biggest and most successful companies are composed mostly of Pākehā. However, many organisations are already driving change. Auckland Council, for example, has set up diversity targets for senior leadership appointments to achieve an organisation leadership that better reflects Auckland's demography (Champions for Change, 2019).

6. CHALLENGES FACED BY WOMEN

In order to better understand the challenges that women face in the water industry, a series of questions about motherhood, caregiving, workplace culture, and inclusivity were asked of the participants in this study. These survey results are presented and discussed in the sections below.

6.1. MOTHERHOOD AND CAREGIVING

Motherhood is proven to provide additional challenges unique to women in the workforce. As Flynn & Harris (2015) revealed, there is a 13% (partnered-mothers) to 25% (sole-mothers) decrease in women's employment in all sectors if they have dependent children. For those mothers retained in the labour force, there is a greater risk of work-life imbalance and job dissatisfaction. In particular, earning potential is negatively affected by motherhood, with only 58% (partnered-mothers) and 61% (sole-mothers) of those with dependent children working full-time, and women being twice more likely than men to be unpaid caregivers in New Zealand (Flynn & Harris, 2015; Grimmond, 2014).

This survey investigated the impact of motherhood and caregiving on women working in the water industry. 32% of the participants are caregivers, with 31% taking care of children and 1% taking care of others (e.g., elderly). Furthermore, 52% of women with dependants were found to be working full-time. 72% of the caregivers who participated in the study reported feeling supported or very supported by the companies or organisations where they work.

The median maximum continuous time that participants took off work to have or take care of children was 6 months. The main difficulties reported by these women when rejoining the workforce were balancing work and family responsibilities, being tired, having to reskill, and needing flexible working hours and/or working part-time to be able to take care of kids.

Of the women who have or intend to have children, 30% indicated that their careers are likely or very likely to affect negatively their decision to start having children or have more children. The main reasons given to put off the decision of having children were financial reasons (55%), having to put their careers on hold (44%), being unable to progress their careers (38%), and anxiety to re-enter the workforce (29%). This data indicates that women in the water industry have concerns about the impact of having children on their careers and earning potential.

6.2. GENDER PAY INEQUITY

Underscoring the qualitative experiences of women in the workforce is the remunerative inequalities based on gender. A study by IPENZ (2015) with 15 engineering organisations found an overall pay gap between men and women of 5% across all career stages. It was also found that the gender pay gap increased with advancing career stages – graduate engineers had the smallest pay gap and at a general manager level, the pay gap was more pronounced.

Stats NZ has reported the gender pay gap as stalling around 9% over the last five years (Stats NZ, 2021). The Ministry for Women placed the 2015 gender pay gap at about 13%, identifying that around 80% of the pay gap is driven by factors that

are difficult to measure, such as conscious and unconscious bias, and the different choices and behaviours of men and women (Pacheco, et al., 2017). The statistical analysis of the data indicated that the higher the wages, the higher the pay gap and the proportion of the gap that cannot be explained by common factors like level of education, type of work, age, and family responsibilities.

6.3. BULLYING, HARASSMENT, AND BIAS

Unconscious bias is one of the major roadblocks to the career development of women, who can be perceived as less likeable, less competent, and less desirable as leaders, ultimately contributing to women's stalling and exit rate in male-dominated occupations (Genat, et al., 2012). In 2021, women were also reported as the most vulnerable to workplace bullying and harassment despite 86% of New Zealand organisations having a zero-tolerance policy of gender-based violence and harassment (Kent, et al., 2021; New Zealand Work Research Institute, 2018). According to Francis (2017), forms of workplace gender discrimination are disproportionately more likely to cause women to change occupations.

To explore the state of workplace culture in the New Zealand water industry, the survey aimed to investigate women's perception of their company or organisation, as well as feelings of safety, comfort, and whether or not participants felt excluded in the male-dominated industry. Participants rated their level of agreement with the survey statements as 'not at all', 'neutral', 'somewhat', and 'strongly'.

77% of the respondents answered they are not or generally not asked gendered questions or treated in a gendered way at their workplaces (i.e., asked when they are going to have children, have their appearance commented on regularly, patronised, or asked invasive questions). Similarly, 77% of the participants strongly or somewhat believe they are given equitable opportunities to advance their careers compared to male colleagues. This suggests that women do not perceive unconscious bias to affect their career development in the New Zealand water industry.

Regarding misconduct such as bullying and harassment, 86% of the survey participants feel that they would be supported or would likely be supported and able to report misconduct in their workplaces. 87% also believe that if they reported misconduct, action would be taken. Although there is work to be done, these results indicate that, in general, women working in the Aotearoa water industry feel supported in matters related to gender bias, bullying, and harassment.

6.4. INCLUSIVENESS

This survey found that 87% of the respondents somewhat or strongly believe they are able to express themselves at work in relation to their gender, sexuality, interests, and lifestyle. It is worth noting that all the respondents, the ones who agreed and the ones who did not agree with this statement, identify themselves as cisgender women. When asked about access to safe spaces, 90% of the survey participants responded they partially agree or strongly agree they have access to safe spaces at work. This data indicates that women seem to generally have freedom to express their identity and access to safe spaces in their workplaces in the water industry.

60% of the respondents scored the New Zealand water industry's level of inclusiveness for women as a 4 or 5 out of 5. In addition, 73% of the respondents strongly or somewhat agree that they do not feel excluded by their company or organisation's culture, or feel treated differently in the workplace because of their gender. However, participants reported sexist comments from male coworkers, discrimination for being a woman, being treated as a less valued employee after becoming a mother, and having to 'prove themselves' in order to be taken seriously. Considering these experiences, there are still opportunities to improve and make this industry more inclusive, fair, and safe for all employees.

6.5. IMPOSTER SYNDROME

Coined in 1978 by psychologists Clance and Imes, imposter syndrome has been cross-analysed in more modern times and contributed to the self-limiting of potential, especially in high-achieving professionals (Bravata, et al., 2020). Many studies have attributed high rates of this syndrome to women, as noted in a report on women technologists, in which 79% of technical women have experienced imposter syndrome at work (TrustRadius, 2020).

When asked to rate their agreement with the statement "I do not regularly feel imposter syndrome in my career (the persistent inability to believe that one's success is deserved or has been legitimately achieved as a result of one's own efforts or abilities)", 19% of participants strongly agreed whilst 29% totally disagreed. On the other hand, 26% answered partially agreed with the statement, meaning they may occasionally feel impostor syndrome or have experienced it at some point in their careers. Bravata et al. (2020) established the detrimental association between impostor syndrome and job performance, job satisfaction, and burnout. Also, they encouraged employers to incorporate recognition of this phenomenon into learning and career development. This demonstrates the importance of addressing this issue to prevent women from leaving the water sector in New Zealand.

7. WOMEN LEAVING THE NZ WATER INDUSTRY

When asked if they have considered leaving the New Zealand water industry, 57% of the survey participant women answered 'Yes'. The participants were also asked about some potential reasons why women may wish to leave this industry, and the results are presented in *Table 4* below.

Table 4 Primary reasons female engineers may wish to leave the New Zealand water industry

Reason	Percentage of participants who may wish to leave the NZ water industry for this reason
Change in career	52%
Motherhood	48%
Better job markets in other countries (i.e. better pay or roles)	56%
Lack of career progression	35%
Competition	13%
Workplace culture	43%

Respondents also listed other reasons for women to leave the water sector:

- Work-life balance,
- Stress levels and potential burnout,
- Lack of job satisfaction and community contribution,
- Lack of female representation,
- Lack of support and training opportunities,
- Bad culture in the construction sector (too confrontational and aggressive),
- Expensive childcare,
- Reunion with parents and family, and
- Bullying.

8. CREATING GREAT WORKING ENVIRONMENTS FOR WOMEN

8.1. SUPPORT TO MOTHERS AND CAREGIVERS

When asked about any positive ways they would like to be or have been supported by their companies as caregivers, most of them taking care of children, the following main points were raised by the survey participants:

- Allowing flexible working such as part-time work, working from home, and flexible working hours,
- Approving leave for the school holidays, when kids are sick, or when required,
- Having access to unpaid leave,
- Having understanding managers who respect the caregiver's boundaries and priorities,
- Allowing people to accumulate sick leave to use when required,
- Financial support during parental leave (e.g., top up the payments provided by the government), and
- Allowing to bring children to work when required.

Critically, most participants seem to have access to one or more of these initiatives. Expanding access to these initiatives to all caregivers in the water industry would be beneficial to further address the challenges mentioned by the participants, such as balancing work and family responsibilities and tiredness.

8.2. ADDRESSING THE GENDER PAY INEQUITY

Global Women (2018) propose that companies and organisations undertake frequent gender pay gap analysis to understand internal pay gaps and the reasons behind them. These should be part of and inform employees' remuneration review cycles. It was also proposed that companies and organisations should develop a clear plan to address pay gaps, including ensuring more women are promoted to senior roles if required, and share information on existing pay gaps and plans to address them with employees to keep the process transparent.

Assessing the gender pay gaps in the water industry and taking action to address these may not only increase the level of fairness in this industry but also increase the satisfaction and potential retention of female employees.

8.3. TACKLING BULLYING, HARASSMENT, AND BIAS

After analysing 117 studies on gender-based bias, Genat et al. (2012) recommended the following strategies to minimise the effects of unconscious bias:

- Frequently raising awareness of stereotyped behaviour (e.g., measuring, reporting, and providing training on unconscious bias),
- Make use of strategies and tools for effective slower and conscious thinking on decisions that have a higher potential to be biased,
- Audit and redesign processes and systems (e.g., gender pay gap audits, and employee promotion systems), and
- Culture change to create organisations that focus on learning, embrace diversity, and are open to new ideas.

Having appropriate policies in place and enforcement processes to back them up may also be an effective way to keep fighting bullying, harassment, and bias in the water industry.

8.4. MENTORSHIP AND WOMEN IN LEADERSHIP ROLES

21% of all Water NZ members are female. While 65% of the Water NZ members in graduate level roles are female, only 15% in principal, leadership and management positions are women (Foster & Brockbank, 2020). This indicates a potential misrepresentation of women in advanced career levels in the water industry.

For engineering as a broader field, Devonshire and Davidson (2020) demonstrate that lack of mentorship and role models are key factors that negatively impact the careers of female engineers. Having access to mentorship was found to be important for women's retention, as mentors support and encourage their mentees, as well as assist with their career progression. On the other side, their study reported that there is a lack of female role models in the engineering sector, in means, women in leadership positions or more advanced career stages. Role models are important to inspire women as their progress in their careers and show them different possibilities of what they can achieve and aim for.

60% of the participants of this study reported somewhat or strongly agreeing that there is sufficient gender-diverse representation at every level of their organisation. When looking at access to mentorship, 74% somewhat or strongly agree that they have access to mentorship in their workplaces in the water field. Potential initiatives to increase satisfaction and retention of women in this field, as well as facilitate their career progression, would be to further increase access to mentorship and female representation in advanced career levels. The latest could be achieved by providing opportunities to develop the leadership skills of female employees and implementing targets and quotas for leadership positions if required (Genat, et al., 2012; Devonshire & Davidson, 2020).

8.5. INCLUSIVE WORKING ENVIRONMENTS

A study commissioned by Diversity Works NZ (2021) found that 35% of the participating companies or organisations did not have any form of gender-focused policy, programme, or initiative to create a fair and inclusive environment for people of all genders (Kent, et al., 2021). It would be vital to ensure such

initiatives are available in the water industry to create inclusive work cultures where sexist comments and gender-based discrimination do not happen, as reported by the participants of this study. Employee surveys on diversity and inclusion can also be a powerful tool to determine where the gaps are in terms of equitable opportunities, as well as to track how successful related initiatives are and be able to adjust them as required (New Zealand Work Research Institute, 2018).

Gender-focused groups and spaces can provide those that so need, a safe space to feel comfortable, accepted, and included, especially in male-dominated industries where workplaces can be physically and socially more suited to men. Safe spaces are also important for new mothers who need privacy for pumping milk at work. Although 90% of the survey participants responded they partially agree or strongly agree they have access to safe spaces at work, it is necessary to ensure these spaces are available to all women in the water sector (Heath, 2019).

9. CONCLUSIONS

This survey findings indicate that the water industry has made good progress in a variety of areas such as, in general, people in leadership roles being perceived as being culturally aware, working environments enabling immigrants to connect to coworkers and make friends, women not being treated in a gendered way and being given equitable opportunities to advance their careers, and the majority of the caregivers feeling supported by their employers.

However, there is still work to be done. Based on feedback from women and immigrants, the greatest opportunities for improvement are:

- Offering specific training for immigrants, such as training on local legislation, standards, and practices that are specific to the water field in New Zealand,
- Help with career planning and increased access to formal mentorship, in special for immigrants,
- A comprehensive induction program for new employees – this could include specific modules focused on the integration of newly-arrived skilled migrants,
- Support and empathy from managers and coworkers,
- Policies regarding bullying, discrimination, and bias; including appropriate coaching on policies and their expectations, as well as accountability to uphold them,
- Increased representation of women and different cultures in leadership roles, and
- Investigating and eliminating gender and ethnic pay gaps.

Furthermore, the study found that the main ways companies and organisations in the water industry can support caregivers are providing financial support during parental leave and flexible work, such as flexible working hours, allowing part-time work and working from home, and approving leave when required.

When asked if they have considered leaving the New Zealand water sector, 48% of the immigrant participants and 57% of the women participants answered 'yes'. A bad workplace culture, as well as better career opportunities and career

progression in other markets and countries, were among the main reasons mentioned by the respondents.

Each company and organisation in the Aotearoa water field has the power to transform this industry by continuously increasing equity and inclusiveness. It is recommended that each one of them interpret this study's results in the context of the policies and practices they have in place, and assess which improvements could be made to further enable not only immigrants and women, but all employees, to have access to workplaces where they are treated with respect, fairness, and feel a sense of belonging.

It is important to note that, independent of the initiatives put in place, it is vital to assess their effectiveness, seek regular feedback to ensure they are working as planned, and make any required adjustments when required. As a result, the water industry may be able to better attract and retain a diverse range of people, as well as enjoy the full potential that they have to offer to the workforce.

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