

# Queensland Water Skills Survey 2024



A report prepared by Balmoral Group Australia  
for **qldwater** and QWRAP Funding Partners  
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Queensland  
Water Regional  
Alliance Program

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Cover page picture source: Workforce composition snapshot 2022- *qldwater*

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## Contents

1. Executive Summary .....	5
Table 1. Recommendations for Future Actions .....	6
2. Project Background .....	8
3. Training Context .....	10
4. Methodology .....	10
4.1. Defining the Workforce .....	12
4.2. Training Landscape .....	12
4.3. Defining the Training Capacity .....	12
4.4. Training Gap Analysis .....	12
4.5. Drivers and Barriers .....	12
4.6. Conclusions and Recommendations .....	12
5. Defining the Workforce .....	13
5.1. Industry Employers .....	13
5.2. Size of the workforce .....	13
5.3. Water and Sewerage Schemes .....	14
5.4. Job Families .....	15
5.5. Regional Distribution .....	15
5.6. Age .....	16
5.7. Gender .....	16
5.8. Vacancies .....	17
5.9. Workforce Turnover .....	17
6. Training Landscape .....	18
6.1. Training and Certification in the Water Industry .....	19
6.2. Current Policy and Inquiry Developments .....	19
6.3. Accredited Training .....	20
6.4. Non-Accredited Training .....	21
6.5. Incorporating Micro-Credentials in Training .....	21
6.6. Coordinating Council Training Through the Water Industry Worker Initiative .....	22
6.7. Other Workforce and Training Initiatives .....	22
7. Defining Training Capacity .....	22
7.1. Overview of VET Completions and Demographic Distribution .....	22
7.2. Regional Training .....	24
7.3. Age Distribution .....	24
7.4. Who has been trained? .....	25

7.5. Assessing Training Needs Across Experience Levels ..... 26

7.6. Training Investment and Course Cost ..... 27

7.7. Future Training Requirements ..... 27

8. Gap Analysis ..... 27

8.1. Underlying Demand ..... 27

8.2. Current Capacity ..... 28

8.3. Evaluation of the Training Surplus and Its Limitations ..... 28

8.4. Highlighting Remote Training Challenges: First Nations Communities Training Needs ..... 29

9. Key Findings ..... 29

10. Conclusion and Recommendations ..... 35

Appendix I: Detailed Workforce Statistics and Trends ..... 39

# 1. Executive Summary

This report is a detailed review of available information and data about skills and workforce prepared for *qldwater* and QWRAP Partner to inform BuildSkills Australia and *qldwater* as the Industry Skills Advisor for Queensland. The primary aim of this work is to shed light on water industry workforce dynamics, emphasising skills, training needs, and challenges in attraction and retention. These are crucial matters for the delivery of safe drinking water, maintenance of water infrastructure, and effective environmental risk management across Queensland communities.

Key findings highlight a significant mismatch between the current skills supply and the evolving demands of the water industry, exacerbated by rapid technological advancements, legislative changes, and an aging workforce. Despite the critical roles skilled operators and engineers play, the absence of mandatory training requirements, lack of comprehensive skills gaps analysis and difficulties in accessing subsidised training have led to gaps in training delivery and workforce development. In addition, managing the qualification needs of operators may be difficult due to the lack of a central record for their skills and training.

The absence of mandatory training requirements, lack of centralised and standardised recordkeeping for skills training, and difficulty in accessing industry funding have led to critical training gaps, despite the crucial role that skilled operators and engineers play in ensuring safe drinking water and effective environmental risk management.

BGA Finding

The report reveals a diverse industry grappling with logistical and financial challenges, particularly in remote areas. The challenges are further compounded by the administrative burdens of the National Water Package (NWP) as well as Australian Skills Quality Authority (ASQA) requirements on Registered Training Organisations (RTOs) and councils. Following the departure of TAFE from the water training landscape, only four private RTOs can provide subsidised training, emphasising the importance of continued government support. In other words, more investment is needed to support essential water services in Queensland. While these RTOs, including recent entrants, seemingly possess the capacity to fulfil the current training demand, the logistical challenge of training delivery in remote locations can significantly hinder actual training coverage across the market. Additionally, a lack of understanding regarding the upskilling needs of already qualified, experienced workers underscores the necessity for more comprehensive Training Needs Assessment (TNA) work. Figure 1 graphically depicts the key barriers to an active and

Figure 1. Key barriers/drivers to an active and vibrant training market



vibrant training market for the industry, and the drivers.

Based on available data, discussions with RTOs, and analysis of workforce and training initiatives, this report offers initial recommendations. These include policy and practical steps to bridge skills gaps, enhance workforce capabilities, and mitigate risks associated with insufficiently qualified personnel. However, the report acknowledges the limitation of not fully capturing water service providers' perspectives, underlining the need for further industry engagement to obtain a complete picture.

Based on the findings, future actions should focus on these key barriers. Table 1 summarises recommendations across each.

**Table 1. Recommendations for Future Actions**

Driver/Barrier	Suggested Action
Adapting to Technological Advances: Integrating Modern Technologies into Water Industry Training	<ul style="list-style-type: none"> <li>- Actively monitor emerging technologies and operational advancements within the water industry.</li> <li>- Advocate for including these modern technologies in the NWP to BuildSkills Australia and ensure the workforce training aligns with current and future industry needs.</li> </ul>
Attracting Talent in an Aging Workforce	<ul style="list-style-type: none"> <li>- Collaborate with High Schools to promote the water sector as an essential employment opportunity</li> <li>- Invest in micro-credentials to ensure that existing operators have learning pathways to ensure an effective match between their skills and the infrastructure they manage.</li> <li>- Develop affordable training opportunities to target high school graduates that facilitate entry into the industry                             <ul style="list-style-type: none"> <li>o Support the QWRAP Program to implement a future focus, aiding regions to help them attract new talent.</li> <li>o Develop fee-free training options (similar to nursing) offered to high school graduates to provide them with Certificate III training to enter the industry. (Boot Camp)</li> <li>o Simulated training hubs – not requiring employment with a service provider to access them would facilitate school entry/access to the sector</li> </ul> </li> <li>- Implement Local Government or QWRAP Region recruitment campaigns and comprehensive training programs that target individuals from diverse careers/backgrounds. This work has been done on a national level by WSAA and AWA, who have developed a water industry Employee Value Proposition for the Water Industry and associated collateral.</li> <li>- Enhance employer branding to highlight the industry's contributions and innovations</li> </ul>

Driver/Barrier	Suggested Action
Financial Barriers to Accessing Training	<ul style="list-style-type: none"> <li>- Evaluate inefficiencies and streamline processes for RTOs to enter the SAS platform to expedite approvals, including alternative financial assurances.</li> <li>- Improve flexibility in training subsidy policy to recognise the needs of multidisciplinary teams and allow access to more units of competency.</li> <li>- Review the financial assurance models for determining the number of SAS allowed to service the water sector</li> <li>- Review RTO Framework Contract, eliminating charging upfront fees and shifting the financial burden to councils; effects the volume of training completed</li> </ul>
Unpredictable and Indeterminate Training Demand	<ul style="list-style-type: none"> <li>- Introduce legislated mandatory qualifications for water industry operators</li> <li>- Enhance Training Needs Analysis (TNA) processes to ensure training is matched with modern infrastructure and treatment processes at a local level by:                             <ul style="list-style-type: none"> <li>o Conducting operator competency assessments as part of Drinking Water Quality Management Reviews as a training opportunity for water service providers</li> <li>o Developing a Whole of State data capture tool that identifies skill/training need requirements to individuals, employers and government agencies</li> <li>o Streamlining TNAs with templates</li> </ul> </li> <li>- Considering training package development in light of asset life protection</li> </ul>
Facilitating Flexible Accreditation	<ul style="list-style-type: none"> <li>- Work with the industry to develop micro-credentials and seek to align with credit for the NWP</li> <li>- Funding of micro-credentials or other non-accredited training in an online environment to support continuing operator education.</li> <li>- Consider quarterly or bi-annual Operator Events or roundtables to encourage knowledge transfer and exchange of best practices between organisations</li> <li>- Consider funding more units of competency (UoC) under packaging rules, to reduce specific skills gaps.                             <ul style="list-style-type: none"> <li>o Provide subsidised units of competency without requiring them to make up a full Certification.</li> </ul> </li> <li>- Develop appropriate co-designed training with First Nations communities</li> </ul>
Dispersion of Industry and Small Service Providers	<ul style="list-style-type: none"> <li>- Address TAFE policies so that TAFE's role as a provider of last resort is aligned with regional and remote offerings and appropriately balanced with private offerings</li> <li>- Evaluate funding allocations between TAFE and more geographically dispersed providers to support training that is more widespread across regional and remote QLD</li> <li>- Consider government-developed training package resources so that best practice materials are available to all and consistent across providers                             <ul style="list-style-type: none"> <li>o Consider a subscription basis for training materials to expand and maintain RTO offerings. These funds can be managed through the Industry Skills Advisor and prioritised through the ISA consultative</li> </ul> </li> </ul>



Driver/Barrier	Suggested Action
	<p>process.</p> <ul style="list-style-type: none"> <li>- Explore the feasibility of centralised common-use training facilities, focusing on adaptability for various locations and incorporating mentorship for remote training support.</li> <li>- Leverage the expertise of industry veterans by implementing a mentorship program to deliver technical guidance.</li> <li>- Consider appropriate recognition in training subsidy platforms regarding distances and travel costs to remote communities, whether borne by the employer or RTO, including making Location Loading available to an entity that is sending trainers or trainees to a hub location</li> <li>- Funding of digital learning platforms to support continuing operator education</li> </ul>
Culturally Appropriate Training/ tailored training approaches	<ul style="list-style-type: none"> <li>- Co-designed training with First Nations (FN) communities – delivered appropriately for and by those communities</li> <li>- Eliminating the one-size-fits-all approach to training also has benefits beyond these communities for other operators</li> </ul>

The findings underscore the necessity of a strategic, coordinated approach to workforce development in the Queensland water industry. This report lays the groundwork for ongoing research, stakeholder engagement, and policy dialogue to ensure the sector is well-equipped to meet future challenges and maintain the high standards of water service delivery and environmental stewardship expected by Queensland communities.

## 2. Project Background

The project is designed to compile available information from the Queensland Water Industry regarding training skilling issues and make it available in contemporary report to assist the work of BuildSkills Australia and *qldwater* in its role as the Industry Skills Advisor. This report has also been developed to inform the future activities of the QWRAP Program and the work of QWRAP Regions in skilling and workforce planning for the water industry in Queensland. The objective is to support *qldwater*, QWRAP regions, partners, and local government water service providers in understanding the workforce dynamics, including skills, training, and workforce attraction and retention challenges. The report's scope encompasses a comprehensive overview of the critical role that skilled operators and engineers play in delivering safe drinking water, maintaining water infrastructure, and managing environmental risk across Queensland communities. Furthermore, the report aims to highlight the potential risks of the absence of qualified personnel to manage water and wastewater services, responsibilities, and assets.

This report is structured to provide data, perspectives, and analysis on various aspects:

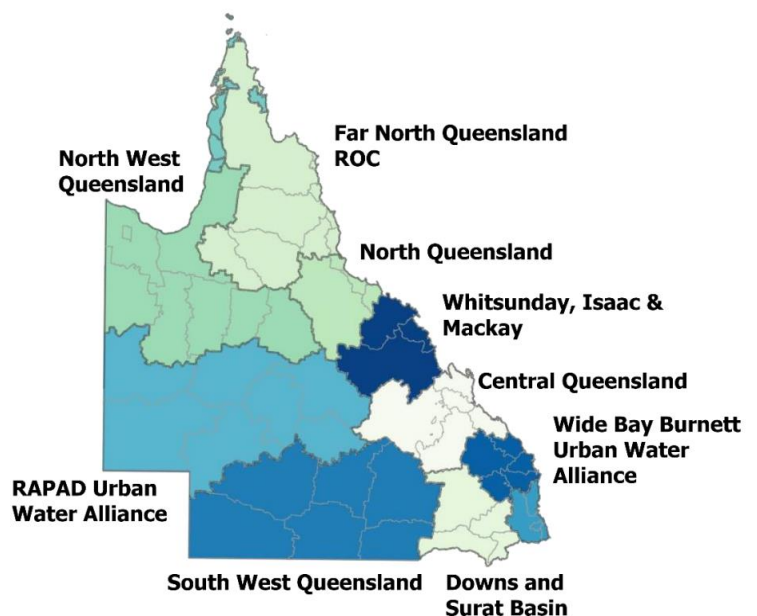
- Workforce demographics within the industry, categorised by QWRAP Region, including industry size, employee count, age demographics, and gender distribution.

- Employment arrangements and related issues among water service providers, covering job roles, award coverage, pay rates, allowances, enterprise agreements, and staffing adequacy to meet regulatory and customer service expectations.
- Identification and documentation of skills attraction and retention challenges, along with the underlying causes of skill shortages.
- A detailed Industry Training Needs Analysis, which includes the future demand for training, referencing the Queensland Health First Nations Training Needs Analysis Trial and the WBBUWA Training Needs Analysis Trial<sup>1</sup> to inform on a state-wide training requirement.
- An assessment of the capacity and capabilities of Registered Training Organisations (RTOs), focusing on the demand for training, the cost implications, and the staffing requirements to meet industry needs in Queensland.
- Defining sector expectations surrounding staff training and competency. The Australian Skills Quality Authority (ASQA) defines competency as “The consistent application of knowledge and skill to the standard of performance required in the workplace.” Does the industry consistently apply the Water Industry Operators Association (WIOA) competency framework and is there a need for a uniform approach to training, as highlighted in Water Research Australia’s Operator Benchmarking Project 1139?

QWRAP is an industry-led initiative to investigate regional collaboration on water and sewerage services

in regional Queensland; Figure 2. Map of QWRAP Regions provides a map of the QWRAP regions. The program is a partnership between *qldwater*, Local Government Association of Queensland, Department of Regional Development Manufacturing and Water and over 60 participating councils. This project is initiated to address the identified gaps and to facilitate strategic planning and decision-making processes for workforce development in the Queensland water industry.

Figure 2. Map of QWRAP Regions



Source: *qldwater*

<sup>1</sup> Wide Bay Burnett Urban Water Alliance (WBBUWA) previously known as the Wide Bay Burnett Regional Organisation of Councils (WBBROC) Design and Construction Code

### 3. Training Context

In 2022, TAFE Queensland decided to halt the delivery of training under the National Water Package (NWP), after concluding that continuing NWP training was not sustainable for the organisation. At the time, TAFE had been responsible for, on average, 60% of all training in the state in the NWP. The TAFE decision stemmed from internal challenges. The result intensified the difficulties associated with obtaining subsidised training within the industry.

The reliance on subsidies for training across various levels is common among most water service providers. With the support of the Department of Employment, Small Business and Training two providers have recently been added to the Skills Assure Supplier (SAS) platform and have been approved for subsidy access bringing the total number of SAS RTO providers to four.

Previously, the two SAS RTOs had adopted a policy of requiring Councils to pay for training in advance, with a subsidy used to provide a "refund" of costs once the training had been completed. This speaks to the challenges encountered by all parties in delivering training across the state in terms of the costs incurred during that delivery process. This, combined with a shortage of RTOs and trainers, plus geographical challenges, has made training access more difficult and costlier for the industry.

Organisations like *qldwater*, and initiatives such as QWRAP, have effectively cut training costs by organising regional cohorts. In addition, the COVID-19 pandemic accelerated the move to virtual training, improving online quality and engagement. Expanding these methods is key for accessible, flexible training, particularly in remote areas, underscoring a commitment to innovation in workforce development.

Incorporating the training context with insights from data, research and key stakeholders enriches this report by providing detailed perspectives on the training challenges and opportunities within the water industry. This combination of sources offers critical insights into the practical impacts of training policies, helping to identify areas for improvement and innovative training solutions, facilitating more effective workforce development strategies.

### 4. Methodology

To understand the challenges and opportunities in water industry training and workforce development, this report utilised a multi-faceted methodology, focusing on in-depth semi-structured interviews, secondary data analysis, and document reviews.

Qualitative interviews with stakeholders from RTOs, industry bodies, and regional training coordinators provided nuanced insights into the sector's training dynamics. These discussions helped identify key challenges and opportunities, with thematic analysis applied to distil these conversations into coherent themes, shedding light on areas needing policy and training intervention.

Contributors to this report include RTOs Envirocheck, Simmonds & Bristow, and Trility, as well as QWRAP staff and individuals involved in the Water Industry Worker and IR/HR Toolkit initiatives.

Secondary data analysis complemented these qualitative insights by drawing on data from the Australian Bureau of Statistics (ABS) and the National Centre for Vocational Education Research (NCVER) as shown in Table 2. This quantitative analysis offered a broader view of industry trends, such as completion rates and workforce demographics, helping to contextualise the findings from interviews and document reviews.

Document reviews systematically examined policy documents, training frameworks, and sector reports. This review helped outline the regulatory and training landscape, identifying updates and gaps in training packages and legislative changes that impact the training environment.

Table 2: Secondary data and insights provided

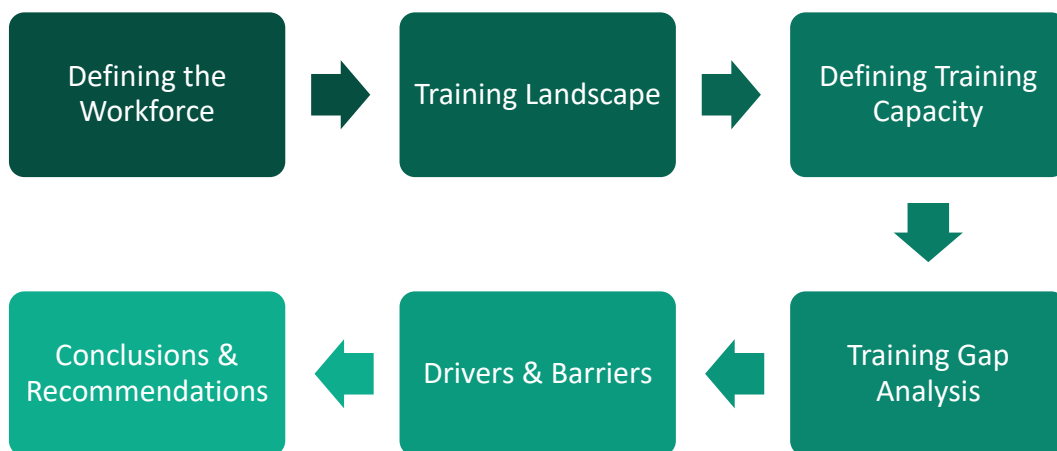
Secondary Data and Research	Insights Provided
Water industry data Research reports Geographical data	Offers insights on workforce size, demographics, and employment trends.
Accredited training data	Indicates training course availability and identifies gaps in training provisions.
Industry Regulation and Policy Documents	Detail the regulatory framework for RTOs, focusing on training delivery and quality assurance.

Source: BGA Work Product

This approach provided a comprehensive picture of the training landscape in the water industry, combining firsthand stakeholder experiences with broader industry data to inform the report’s analysis and recommendations effectively.

Our methodology was integrated across different sections of the report, ensuring a coherent link between how information was gathered and the findings as shown in Figure 3.

Figure 3. Methodology process



Source: BGA Work Product

## 4.1. Defining the Workforce

The analysis used data from the State-wide Water Information Management system (SWIM) and the *qldwater* Urban Water Industry Workforce Composition Snapshot Reports (*qldwater* Workforce Reports) to identify industry employers, workforce size, and regional distribution of water treatment facilities. This examination provided a foundation for understanding current and future workforce requirements and their geographic distribution.

The *qldwater* Workforce Report 2022 gathered survey responses from 33 organisations, including Councils and major city utilities. These responses represented 3,442 employees or 58% of Queensland's total water industry workforce.

## 4.2. Training Landscape

The work explored the framework and practical aspects of training, differentiating between accredited and non-accredited training. This section lays the groundwork for understanding the existing training infrastructure and its alignment with industry needs.

## 4.3. Defining the Training Capacity

To evaluate the training system's capacity and the regulatory environment's impact on RTOs, the researchers derived insights from interviews with RTOs and reviewed industry regulation and policy documents. This included assessing the number of trainers and their qualifications according to the NWP, offering a clear picture of the training delivery ecosystem.

## 4.4. Training Gap Analysis

The reviewers leveraged demographic analysis and National Centre for Vocational Education Research (NCVER) data to estimate ongoing training demand and identify gaps. This phase critically examined the alignment between current training capacity and workforce turnover, and the analysis provides a nuanced understanding of the assessment outcome.

## 4.5. Drivers and Barriers

Reviewers compiled findings from stakeholder interviews to identify and understand the dynamics influencing training scarcity and market barriers. Validation with RTOs and key stakeholders enriched this analysis, providing a detailed view of the operational challenges and opportunities within the training landscape.

## 4.6. Conclusions and Recommendations

Reviewers targeted policy responses and outlined practical improvement strategies for Queensland's water industry workforce development.

A limitation of this report is the absence of water service providers as key stakeholders interviewed. Including them in further research would significantly enrich the analysis, ensuring a comprehensive exploration of the training needs and the nuances of workforce development strategies. The industry would benefit from a complete lifecycle analysis, which includes (material, time, ongoing and regulatory

costs) for ALL parties, i.e. Government, Industry Bodies, RTOs, employees, Local Governments and the public.

## 5. Defining the Workforce

### 5.1. Industry Employers

#### Water services are provided predominantly by public entities.

Queensland's water services are provided by 75 public entities, excluding private providers<sup>2</sup>. This includes 66 local councils outside South-East Queensland (SEQ), with 15 Aboriginal and two Torres Strait Island councils. SEQ's water services are managed by two statutory authorities and directly by three councils.

The state also has two major state-owned companies and two Water Boards in Mount Isa and Gladstone, addressing bulk water supply and treatment. For further details on industry employers, see Appendix 1.

### 5.2. Size of the workforce

#### Water industry workforce size in Queensland remained relatively constant during the past several years.

As of November 2022, the Queensland Urban Water Industry employed a total of 6,711 individuals, maintaining a similar level to the 6,686 employees recorded in 2020, according to the SWIM database.

Table 3 provides a detailed breakdown of employment figures within the Queensland Water Industry. Employment data for local council service providers listed in Table 3 derive from the 'employees' indicator QG1.20, submitted through SWIM.

Table 3: Number of employees working in the Queensland Water Industry

Organisation	Size of the Workforce
Total SEQ local government-owned employers	2,562 employees
Local Government service providers outside SEQ	2,462 employees
Bulk water providers	1,376 employees
Private and other organisations	200* employees
Gladstone and Mt Isa state-owned water boards	111 employees
TOTAL	6,711

\* Includes contract operations employees only, not capital project employees or consultants

Source: **qldwater**

<sup>2</sup> qldwater Workforce Report 2022

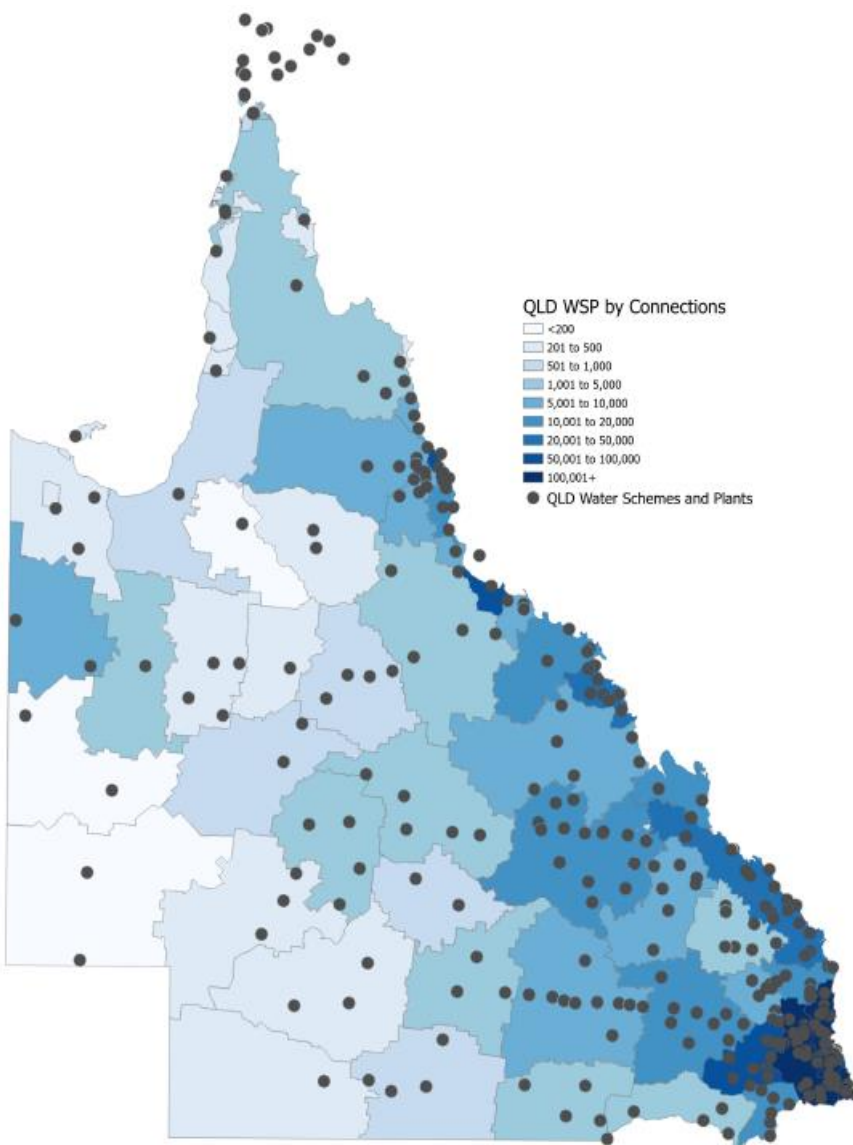
For bulk water entities and state-owned water boards, employee counts have been sourced from the 2022 annual reports of each organisation. Estimates of employment within private sector organisations are based on an understanding of current outsourcing practices and previously gathered data.

### 5.3. Water and Sewerage Schemes

#### Water and sewerage schemes are located across diverse regions and serve large and small communities.

Figure 4 illustrates the distribution of property connections and water supply scheme locations across various local government areas in Queensland. The industry is notably diverse and fragmented, with each

Figure 4. Queensland Potable Water Schemes and Property Connections by Local Government Area



Source: *qldwater Workforce Report 2022*

region being influenced by unique factors. More than half of the state's roughly 370 water supply schemes serve communities of fewer than 500 residents.

These factors present significant challenges in service delivery, impacting financial sustainability for many providers, complicating the recruitment of skilled staff, and making the provision of in-person training for technical and operational roles difficult.

## 5.4. Job Families

### Jobs in Civil Construction, Plant Operators, and Trades have been increasing while jobs in Corporate, Engineering, and Business Support Jobs decreased.

Figure 5 presents the trends of employees by Job Family Categories across 2016, 2018, 2020, and 2022. Employment was reported most frequently in the Business Support job family category in each of these four years, although there has been a downward trend in the percentage of these jobs since 2018. Increasing trends in employment are occurring in the Civil Construction, Plant Operators, and Trades job families. Decreasing trends are seen in Corporate & Operational, Engineering Professional, and Engineering Paraprofessional job families. Jobs in the Dam & Ranger and Scientific Paraprofessional job families have remained relatively constant. More details on the yearly job family trends are provided in Appendix 1.

Figure 5. Trends in Industry Job Families from 2016 Through 2022



Source: **qldwater** Workforce Report 2022

## 5.5. Regional Distribution

### A widespread population requires extensive regional distribution of water service providers and workforce.

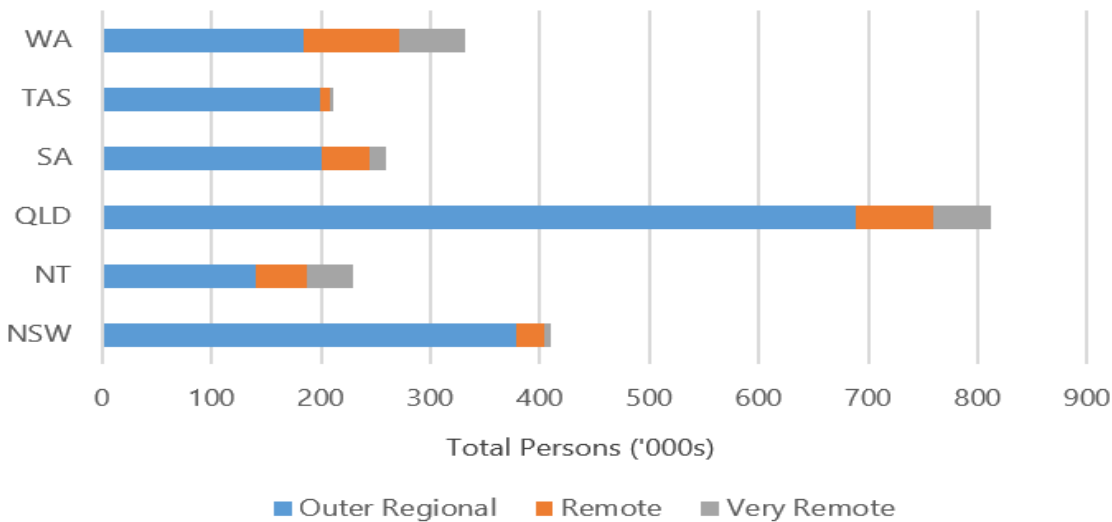
Queensland's population is spread across a vast area, marking it as the Australian jurisdiction with the highest number of residents living outside of major cities and 'inner regional' zones. This widespread population distribution has led service providers to manage more than 370 public water supplies, which are often situated up to 100 kilometres apart, with 88% being potable water systems. Two-thirds of these



potable services cater to towns of fewer than 1,000 people, and half of them serve communities of fewer than 500 residents.

Figure 6 illustrates that Queensland has a significantly larger population living outside of Major Cities and Inner Regional areas compared to other states, with approximately 800,000 residents in these more remote locations. This number is notably double that of New South Wales, which has the second-largest population in similar areas.

Figure 6: Distribution of population by states



Source: BGA Work Product, ABS 2021 Census

## 5.6. Age

### Recent increases in younger age groups have occurred in the water service workforce.

The *qldwater* Workforce Report 2022 captures the age distribution within the workforce from 2010 to 2022. A persistent pattern emerges, with the bulk of employees falling within the 31 – 60 age range, a trend that has remained stable since the initiation of these reports in 2010. Notably, there has been a rising trend in the representation of the <20, and 21 - 30 age groups, showing an increase in 2020 and further growth in 2022 which is a positive trend worth highlighting. For additional information regarding age demographics and the breakdown of age by occupation, refer to Appendix 1.

## 5.7. Gender

### Female representation in the water service workforce is increasing.

The *qldwater* Workforce Report 2022 also highlights the gender composition within the workforce, tracking its evolution over time and benchmarking against the gender balance across all industries in the State, as per ABS data.

Despite the water industry's continued male predominance, there has been a noticeable narrowing in the gender disparity, signifying strides towards gender equality and efforts by organisations to foster a more inclusive workplace. The 2022 *qldwater* report found that the representation of female employees

throughout the State increased by 8%, marking the most significant growth observed since 2010, with the mix in 2022 approximately 62% male and 38% female. Further details on the gender distribution in the workforce are within Appendix 1.

## 5.8. Vacancies

### High vacancy rates have been identified across all water service industry roles.

Vacancies have been identified across all roles within the industry, as reported by the *qldwater* Workforce Report 2022, with industry reporting unfilled positions lasting in excess of 13 months across more than half (57%) of positions<sup>3</sup>. Organisations reported vacancy rates for some positions as high as 40%-45%, with vacancy durations exceeding three years in some instances. These figures highlight a pressing concern within the Queensland water industry, particularly when compared to the national average proportion of businesses reporting vacancies for the 2022-23 period, which stands at 23% for all industries and 27% specifically for Electricity, gas, water and wastewater services. This situation has placed considerable strain on existing teams, leading to increased instances of fatigue and burnout.

This challenge is not confined to smaller entities but is also impacting larger utilities and bulk water providers, particularly in SEQ. The issue is expected to escalate with the increasing demand for trades and engineering roles in the lead-up to the Olympic and Paralympic Games 2032. For additional details on labour hire vacancy rates and their durations, refer to Appendix 1.

## 5.9. Workforce Turnover

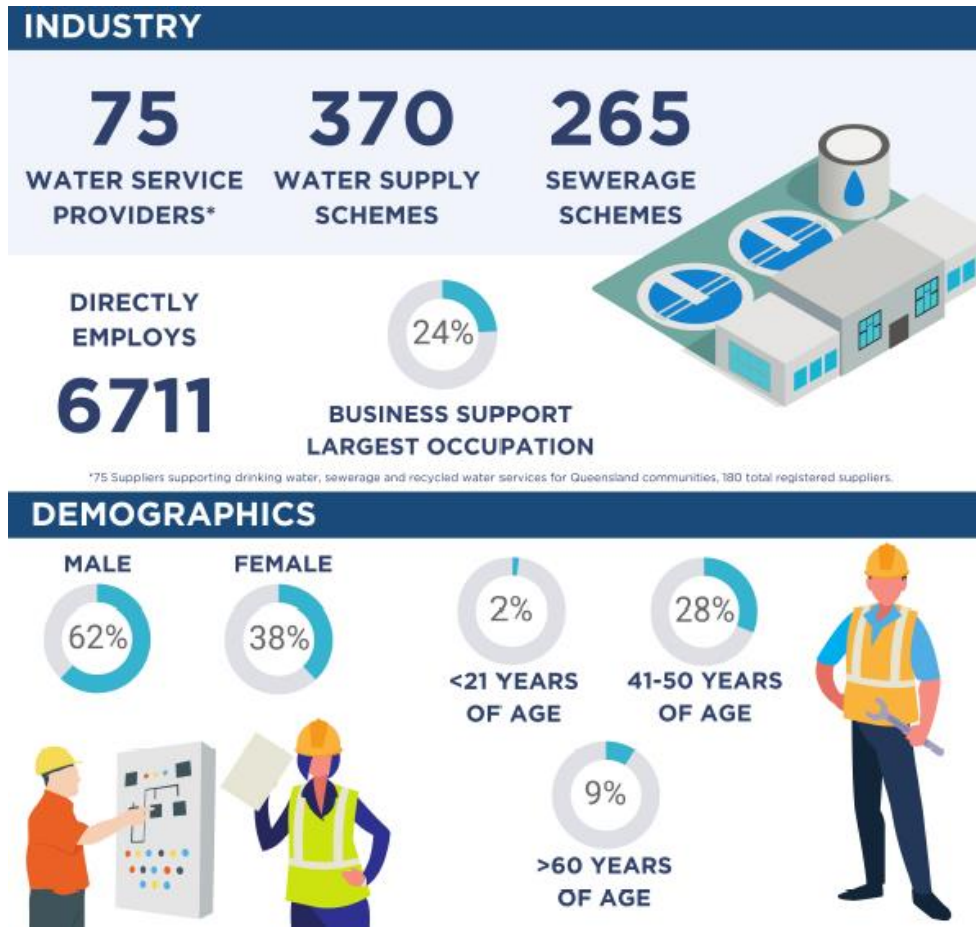
### Training is needed to minimize workforce turnover.

Almost 10% of operators are aged over 60, from a total operator count of 1,074 (which represents 16% of the total workforce of 6,711), and are anticipated to retire within the next 5 years. Therefore, to keep the workforce size stable without expansion, training at least 20 new operators each year is required to compensate for retirements and try to keep up with normal attrition. It is important to recognise the above analysis does not consider the existing or current gap in operator numbers. Work completed by QWRAP Regions indicate that current under resourcing of 10-20% is not unusual.

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<sup>3</sup> 11 of 19 surveyed positions report vacancies lasting 13+ months.

Figure 7: Snapshot of the Queensland water industry



Source: **gldwater**

## 6. Training Landscape

Water and sewerage services are critical to communities, with providers' inability to deliver safe and reliable services posing significant public health and environmental risks. Given the sector's high-risk and technical demands, operators must possess extensive training and experience to ensure quality drinking water and effective sewerage management, safeguarding public and environmental health. While there's no mandated skilling requirement for the water industry workforce, Queensland's water service providers have shown that they are broadly committed to ensuring staff are suitably skilled.

The NWP serves as the main vocational training package for onsite workers, extending its relevance to numerous para-professional qualifications as well. It covers a broad spectrum of topics, including water and wastewater treatment, construction and maintenance, bulk water supply, hydrography, metering, and various other industry-related streams.

The NWP includes four qualifications made up of 169 units of competency:

- Certificate II in Water Industry Operations
- Certificate III in Water Industry Operations
- Certificate IV in Water Industry Operations
- Diploma of Water Industry Operations

The majority of training in Queensland is delivered through the NWP via an RTO pathway for accredited training, which is funded. Simmonds & Bristow and Water Training Australia (WTA), two well established RTOs along with two newer entrants, Envirocheck and Trility, provide accredited training supported by State Government subsidy programs. While other RTOs can be engaged for accredited training delivery, their serviced-based fees eliminate them as viable options for the majority of water service providers. Additionally, training programs are available, offering specialised courses in selected areas such as chlorine gas system maintenance, addressing needs beyond the scope of the NWP. These would only be available on a fee for service basis.

Tailored solutions are critical for meeting the specific needs of this workforce and ensuring the delivery of safe and reliable water and sewerage services, crucial for public and environmental health urban, regional and rural Queensland. The training market for Queensland's water industry is notably small and focuses on highly specialised qualifications. The widespread and remote workforce distribution requires adaptable and accessible training approaches.

## 6.1. Training and Certification in the Water Industry

### National standards establish training and certification criteria for the water industry.

In late 2017, the Water Industry Operator Certification Framework 2018 (the Framework) was ratified by the Water Industry Skills Taskforce (WIST), setting a uniform set of criteria across the nation. These standards specify the essential competency and capability levels for operators in the treatment of water, sewage, recycled water, and their networks. The aim is to ensure the safety and suitability of the final product for public health and environmental protection. The Framework, currently overseen by the Water Industry Operator Certification Taskforce (WIOCT), establishes the foundation for recognising operator qualifications within the industry.

## 6.2. Current Policy and Inquiry Developments

### Recent national policy reforms address workforce training gaps.

Following a 2019 independent review of Australia's Vocational Education and Training ("VET") sector, the Department of Employment and Workplace Relations has led skills reform to boost economic and social outcomes. Current reforms include:

- Jobs and Skills Councils (JSCs) that will undertake workforce planning, develop training products, including the review and redesign of qualifications in training packages and provide advice on national training system policies and workforce issues affecting their industries.
- Strategies and practices to support Closing the Gap
- Revising RTO standards and introducing a workforce blueprint to ensure training quality meets diverse needs
- Developing policy guidelines for recognising micro-credentials for credit

In October 2022, the Education, Employment and Training Committee initiated an inquiry into the delivery of VET in regional, rural, and remote Queensland. The investigation focused on the role of public VET providers, examining pathways, participation, and outcomes, especially for First Nations peoples. The report, published in February 2024, considered over 30 stakeholder submissions, including *qldwater*,

to inform key insights and recommendations regarding the accessibility of higher education outside major Queensland cities.<sup>4</sup>

### 6.3. Accredited Training

#### Several RTOs provide accredited training and are eligible for subsidy funding in Queensland.

In Queensland, as noted previously, there are two well established RTOs. Simmonds & Bristow provide Certificate II, III, IV and Diploma training with subsidies available for all four. Water Training Australia offer the same qualifications except for the Diploma, and are eligible for subsidy funding. The newer entrant, Envirocheck, offers Certificate II and III and is also eligible for subsidy funding in Queensland. Trility as the final new SAS RTO offer Certificates II, III and IV in Water Industry Operations and are able to access training subsidies.

Both Certificate II and III qualifications are currently prioritised for funding by the Department of Employment, Small Business and Training (DESBT) through the User Choice and Certificate 3 Guarantee programs. Additionally, Certificate IV and Diploma qualifications, as well as training in 10 skill sets from the NWP, receive subsidy support under DESBT's Higher-Level Skills (HLS) funding program.

#### 6.3.1. Course Duration and Enrolment Patterns

RTOs, including TAFE, are required to comply with the Australian Qualifications Framework (AQF) guidelines, regarding volume of learning, which describes how long a student who does not hold any competencies would take to acquire the relevant skills and knowledge for a qualification.<sup>5</sup> Table 4 describes the AQF guidelines on volume of learning by qualification

Table 4: AQF Volume of Learning

Qualification	Time to complete	
	Hours	Years
Certificate II	600 - 1200	0.5 - 1
Certificate III	1200 - 2400	1 - 2
Certificate IV	600 - 2400	0.5 - 2
Diploma	1200 - 2400	1 - 2

Source: ASQA, *User's guide to Standards for RTOs 2015*

Note: Includes all teaching, learning and assessment activities that a typical student must undertake to achieve the learning outcomes.

Actual volumes of learning depend on the field of study, the RTO delivering the course and the student undertaking the studies. Critically, the ASQA states that a shorter course may be appropriate if, for example, the student cohort comprises experienced workers who already have most of the required skills and knowledge. Based upon the demographics of the industry, as well as consultation with RTOS,

<sup>4</sup> <https://www.parliament.qld.gov.au/Work-of-Committees/Committees/Committee-Details?cid=251&id=4360>

<sup>5</sup> <https://www.asqa.gov.au/rtos/users-guide-standards-rtos-2015/chapter-4-training-and-assessment/clauses-11-14-and-22-implementing-monitoring-and-evaluating-training-and-assessment-strategies-and-practices#what-clauses-1-1-to-1-4-and-2-2-mean-for-your-rto>

this is often the case in Water Industry Operations. This informs the typically shorter estimates provided by TAFE and RTOs on course completion times.

According to TAFE and various RTO websites, a certification in Water Industry Operations typically entails 11 units of competency, comprising core units and electives, if it is to qualify for a training subsidy. Dependant on the RTO and format of delivery, obtaining a Certificate III involves approximately 400-500 hours of training, including study and practical experience.<sup>6</sup> This time commitment may be reduced when considering an individual's prior experience and supervision in the industry. This figure forms the basis of estimations for current training demand in Section 8: Gap Analysis.

The majority of NWP qualifications are completed on a part-time basis. According to the NCVER database, in 2022, 97% of enrolments were part-time and the remaining 3% were completed full-time. Additionally, data supplied by Trility suggests that enrolments are split 50:50 between face-to-face delivery and a distance learning model.

## 6.4. Non-Accredited Training

**Non-accredited training targets specific industry needs in specialised areas but is not eligible for funding.**

Non-accredited training, offered by both RTOs and non-RTOs, received no training subsidy and may also not currently align or receive NWP credit type transfer or recognition. Designed for field roles, this training covers specialised areas like chlorine gas system maintenance, cable locating, sewer re-lining, and leak detection, targeting specific industry needs.

Specialised training for plant upgrades, which includes both initial and continuous training for new staff, may not be covered in NWP modules. While this training is typically initially included in the capital budget at the time of implementation, it may remain as an essential ongoing need as new staff join.

Stakeholders indicated that non-accredited training generally sees lower uptake, especially within the Council-led water service providers that rely substantially on government funding for training.

## 6.5. Incorporating Micro-Credentials in Training

**Micro-credentials have recently been incorporated into training programs.**

The 2021/2022 Micro-Credentials, a non-accredited pilot program by *qldwater*, derived foundational skills from units of competency within the National Water Training Package, and was funded by the Queensland Government. *qldwater* has recently been successful in applying for further funding for Micro Credential development in topics requested by the membership base. These are currently in development and will be launched in 2024. The Micro-credentialing Program is part of the Queensland Workforce Strategy 2022-2032 and is supported and funded by the Queensland Government.

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<sup>6</sup> Certificate III is the most common qualification in the sector, see Section 7.1.

## 6.6. Coordinating Council Training Through the Water Industry Worker Initiative

### The Water Industry Worker Initiative promotes collaboration among councils.

Funded through the QWRAP Program, the Water Industry Worker program, Queensland's largest collaborative training initiative, has effectively promoted collaboration among councils, demonstrating the benefits of collective action. The WIW Program Acts as a "one stop shop" training aggregation support service for Queensland Local Governments and has recently expanded aggregation services beyond accredited training into non-accredited training. It has also recently been expanded to provide these supports to Treatment Operators as well as the Network Field teams it has always supported.

Aside from workforce training, councils gained from exchanging operational practices during sessions, which led to tangible improvements. The proposed creation of an alumni network would further support ongoing learning and networking; quarterly or bi-annual roundtables to encourage knowledge transfer and exchange of best practices could be very valuable and cost-effective.

## 6.7. Other Workforce and Training Initiatives

### Several other initiatives are responding to industry workforce and training challenges.

In response to training challenges in the industry, several focused analyses are being conducted. The Water Industry Operators Association (WIOA) carried out a training needs analysis for Queensland Health in July 2022, specifically targeting 31 First Nations communities within Queensland's Aboriginal and Torres Strait Islander Local Governments. Following this, QWRAP has initiated training needs analyses in the Wide Bay and Far North Queensland Council areas, aiming to identify localised training requirements.

Complementing these efforts, the IR/HR Toolkit Initiative, supported by QWRAP, seeks to equip *qldwater* member organisations with effective strategies for recruiting and retaining Water Operators. The toolkit includes standardised position descriptions, recruitment tips, strategies for writing position descriptions and job ads, advertising sources, partnership opportunities, and retention strategies.

## 7. Defining Training Capacity

The vocational education and training (VET) market plays a crucial role in addressing the diverse needs within the water industry, offering both foundational and advanced competencies to equip new entrants and experienced workers alike with essential skills, stay updated with technological advancements, and support their career progression.

### 7.1. Overview of VET Completions and Demographic Distribution

#### VET completions have been consistently decreasing since 2018.

On average 214 NWP qualifications completed each year in Queensland over the past 5 years, as indicated in Table 5. Certificate III has been the predominant qualification, comprising 70% of completions, with Certificate II following at 18%. The low uptake in Certificate II is attributed to challenges in capacity building, training subsidy access, RTO availability, competency content, and the duration to achieve qualifications. Despite this, some water providers believe Certificate II could offer a more suitable

entry point for newcomers, suggesting that the preference for Certificate III may be as much about resource limitations than optimal learning outcomes<sup>7</sup>.

An analysis of the qualifications indicates a decline in training from 2020 across all qualification levels. Training was significantly curtailed by the COVID-19 pandemic, and a switch to fee-for-service training by some providers to quickly meet needs, resulted in reduced training activities.

Table 5: VET completions of NWP qualifications in Queensland

Qualification	Total Completions <sup>8</sup>					Average completions per year	% of average total completions
	2018	2019	2020	2021	2022		
Certificate II	70	45	30	25	25	39	18
Certificate III	145	160	170	150	120	149	70
Certificate IV	25	25	25	15	10	20	9
Diploma	-	5	10	5	5	6	3
Total	240	235	235	195	160	214	100

Source: BGA Work Product, NCVET 2022

By total qualifications, Queensland was the second largest provider of the NWP in 2022, behind Western Australia, and followed by New South Wales (Table 6). Notably, Queensland was the largest provider of Certificate III training, one of the few providers of Certificate IV and the only provider of a Diploma under the NWP. All States, except for Western Australia and Tasmania, have seen a decline in total VET completions under the NWP since 2018, including the Northern Territory and the Australian Capital Territory which no longer provide any qualifications as of 2022.

Table 6: VET completions of NWP qualifications by State in 2022

Qualification	Total Completions (2022) <sup>9</sup>											
	NSW	%*	VIC	%	SA	%	WA	%	TAS	%	Offshore	%
Certificate II	5	5	-	-	-	-	50	30	-	-	20	100
Certificate III	85	85	-	-	15	100	115	70	20	100	-	-
Certificate IV	10	10	5	100	-	-	-	-	-	-	-	-
Diploma	-	-	-	-	-	-	-	-	-	-	-	-
Total	100		5		15		165		20		20	

\* Percent of total completions for the State

Source: BGA Work Product, NCVET 2022

<sup>7</sup> qldwater Workforce Report 2022

<sup>8</sup> NCVET data numbers are rounded to the nearest 5

<sup>9</sup> NCVET data numbers are rounded to the nearest 5



## 7.2. Regional Training

### Most VET courses occurred in major cities and inner regional areas of the state.

Table 7 presents the number of VET courses completed by region. It reveals that the majority (65%) of the completed training occurred in the Major Cities and Inner Regional areas of the state. Outer Regional, Remote, and Very Remote locales constituted 23%, 7%, and 5% of the totals respectively, with a slight decline observed from 2020 to 2022.

Table 7: VET Completions by remoteness region

Remoteness Region	Total Completions					Average completions per year	% of average total completions
	2018	2019	2020	2021	2022		
Inner regional	60	50	55	55	50	54	25
Major cities	120	120	90	50	50	86	40
Outer regional	30	40	65	65	50	50	23
Remote	15	15	20	15	5	14	7
Very remote	10	15	5	15	5	10	5
Total	240	235	235	195	160	213	100

Source: BGA Work Product, NCVET 2022

## 7.3. Age Distribution

### Training opportunities are aligned well across most age groups, but the 60+ cohort has few VET completions.

NCVER can reveal the age distribution for training in the VET sector. Table 8 shows that 52% of operators being trained are aged between 30 and 49 years of age and 19% are aged between 50 and 59. From a training perspective, this is important to understand as modern training methods may not sit well with older generations which have potential consequences for the delivery mode of training in the future. As an example, there is a cohort of operators in the older age demographic that are believed to be illiterate and some that may not be able to use the modern technology that would be employed in remote learning methods.

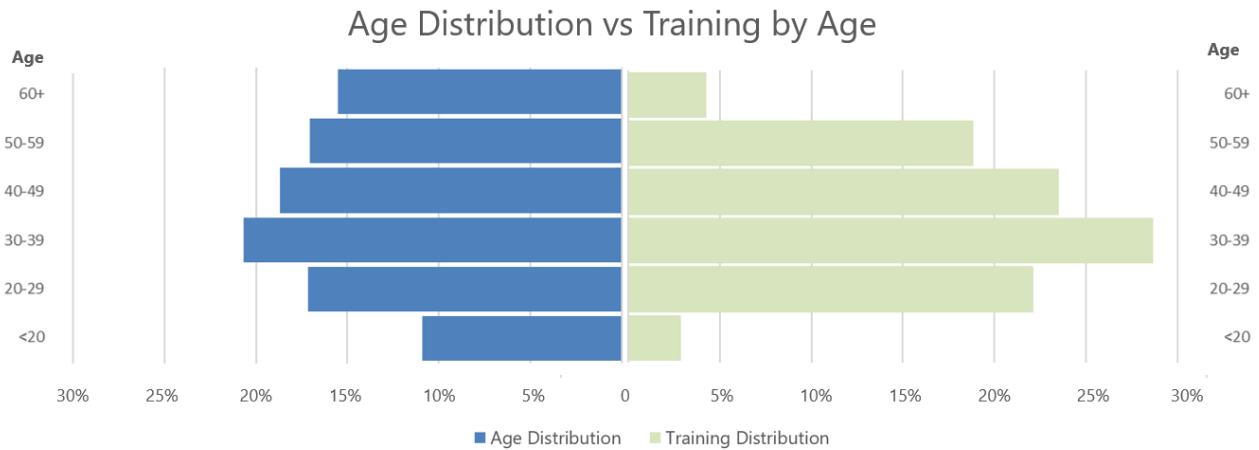
Table 8: VET Completions by age

Age	Total VET Completions					Average completions per year	% of average total completions
	2018	2019	2020	2021	2022		
<20	5	10	5	10	0	6	3
20 – 24	15	20	15	20	15	17	8
25 - 29	30	30	35	30	25	30	14
30 - 39	60	60	80	60	45	61	29
40 - 49	55	60	50	45	40	50	23
50 - 59	60	45	40	25	30	40	19
60+	15	10	10	5	5	9	4
Total	240	235	235	195	160	213	100

Source: BGA Work Product, NCVER 2022

Figure 8 demonstrates that the volume of training provided corresponds closely with the number of individuals in each age cohort, indicating a well-aligned distribution of training opportunities across different age groups. However, it is noteworthy that for those under 20 years of age, the training volumes are markedly lower; this could show that the younger group may also still be in-training and are not appearing as completions, or could suggest a gap in engagement for this younger demographic.

Figure 8: Age and Training Distribution<sup>10</sup>



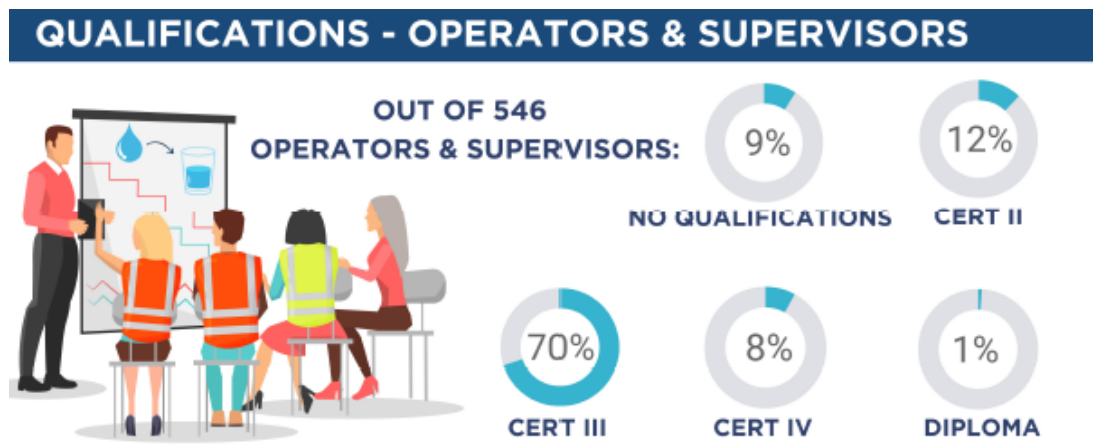
Source: BGA Work Product, *qldwater* Workforce Report 2022, NCVER 2022

## 7.4. Who has been trained?

### Certificate III in Water Industry Operations is the most widely held qualification.

The Certificate III in Water Industry Operations is the most widely held qualification in the Training Package. Among surveyed Council Operators and Supervisors in 2022, 70% hold a Certificate III, 12% have a Certificate II, and 9% possess no qualifications (see Figure 9).

Figure 9: Operator and Supervisor Qualifications in the Queensland Water Industry

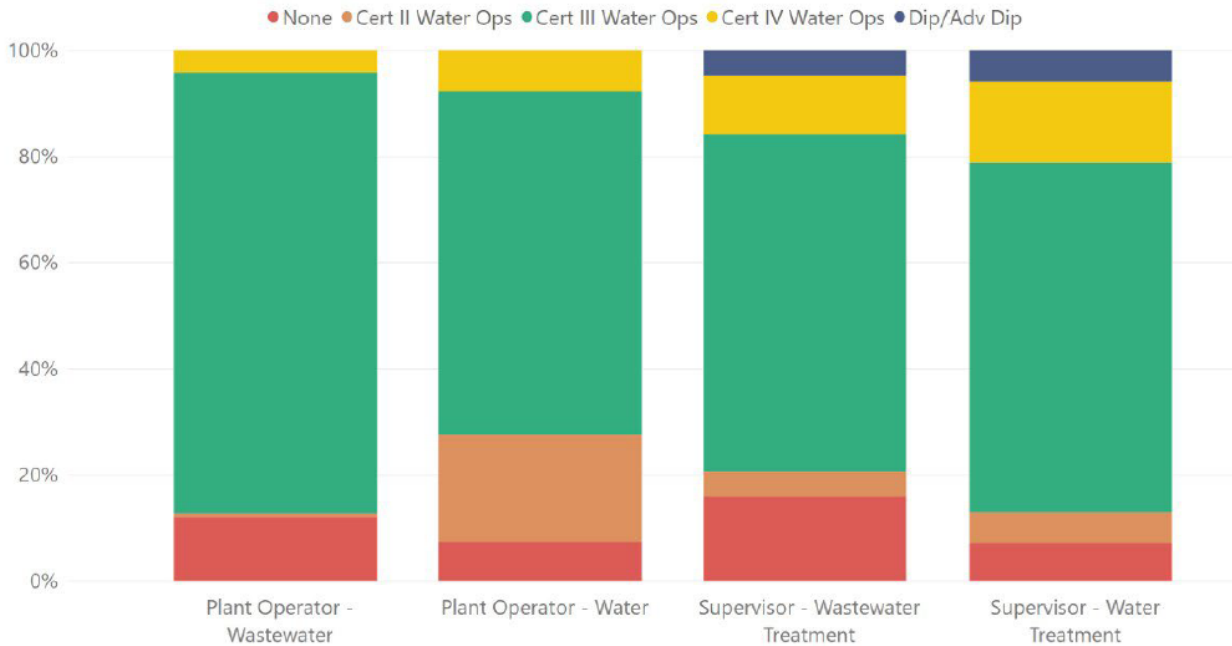


<sup>10</sup> The age distribution for training was determined by averaging data from the 2018, 2020, and 2022 workforce surveys, as provided in the *qldwater* Workforce Report 2022.

Source: **qldwater** Workforce Report 2022

According to the *qldwater* Workforce Report, 83% of Wastewater Treatment Plant Operators and 65% of Water Treatment Plant Operators held a Certificate III in Water Industry Operations, as shown in Figure 10. This was a significant increase from 65% and 59%, respectively, in 2020. This increase has in part been driven by the success of the QWRAP Water Industry Worker Program that has successfully aggregated training cohorts and enhanced completion outcomes.

Figure 10: Qualifications by Job Role (Operators and Supervisors Only)



Source: **qldwater** Workforce Report 2022

However, all roles, except "Plant Operator - Water" saw a rise in unqualified staff from 2020 to 2022: Wastewater Operators from 4% to 12%, Water Operators remained at 7% unqualified, and Supervisor roles in wastewater and water treatment saw increases from 5% to 16% and 0% to 7%, respectively. This trend, potentially influenced by the larger 2022 survey response, highlights training gaps and might be linked to high vacancy rates. The absence of mandated qualifications for water industry workers contributes to this scenario. Further details of job categories and qualifications and are available in Appendix I.

## 7.5. Assessing Training Needs Across Experience Levels

### The inexperienced workforce needs foundational training while experienced workers have nuanced training needs.

The analysis of VET completions and demographic distribution within the water industry reveals a significant portion of the workforce without qualifications. These unqualified individuals are predominantly new entrants, which underscores the critical need for foundational training programs aimed at equipping them with the necessary skills for their roles.

Additionally, establishing a centralised system to record the training and skills certificates and history of each operator is imperative. However, what remains less visible from the data are the nuanced training needs of experienced workers. While some may require further education to fulfil basic operational

competencies, others might seek advanced training for career advancement or to keep pace with changing technologies in the plant. The challenge lies in identifying these varying needs across different experience levels within the workforce.

While the training market addresses various educational needs within the water industry, stakeholders have identified gaps in systematic training needs assessments and well-defined career pathways. These gaps hint at broader challenges in aligning training with the sector's evolving demands and supporting workforce development.

## 7.6. Training Investment and Course Cost

### Training costs include multiple components and may be covered by state funding or employer contributions.

Government funding for the Certificate II is \$4,160, while the Certificate III receives \$7,520. RTOs providing training in country, remote, Cape York, and Torres Strait regions under User Choice funding will receive a location loading. This loading, which ranges from 115% to 250% of the government's funded amount, is in addition to the base contribution, catering to the unique needs of these areas.

Additionally, a Student Contribution Fee (SCF) applies, set at \$1.60 per nominal hour per unit of competency, with some exemptions applicable. SCFs can be paid by the learner or their employer. If funding doesn't fully cover course fees, an Employer Contribution Fee may be required, typically borne by the employer or an industry association.

## 7.7. Future Training Requirements

### Future training will need to incorporate new skills as infrastructure improvements occur.

Future training will require operators to learn new skills as treatment plants are upgraded. In April 2023, Glenn Butcher, the Minister for Regional Development and Manufacturing and Minister for Water for Queensland, declared that 50 councils were granted \$69 million to support nearly 100 regional water and sewerage infrastructure projects under the Building our Regions program. This is an indication that there is a steady pipeline of new and upgraded infrastructure going forward in Queensland. These projects will require training for experienced operators in new technologies, as well as foundational training for new operators.

## 8. Gap Analysis

### 8.1. Underlying Demand

#### To meet underlying demand will require training 644 new operators.

The four-year total requirement for Certificate III is 741 qualifications at an average of 185 per year. If we assume that 100% of the untrained population (97 operators<sup>11</sup>) require Certificate III training, an underlying demand of 97 Certificate III training exists in Queensland today. Factoring in an industry turnover rate of 15% over the next four years, it is necessary to train an additional 644 new operators.

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<sup>11</sup> Of the total workforce numbering 6,711, 1,074 are operators, which constitutes 16%, with 9% of these operators lacking any formal qualifications.

Assuming a certification requires an average of 450 hours to complete and that approximately 80% of those hours involve classroom and in-field training or supervision from an accredited trainer, the demand for accredited training hours is about 360 hours or 51 days per certification.<sup>12</sup> Although we assume that acquiring a certification requires approximately 50 days of accredited trainer time, typically RTOs will provide less accredited trainer hours than this. For example, Trility delivers Certification III in Water Industry Operations with only 40 days of trainer interaction. Notably, delivery of training over distance through virtual means requires significantly less trainer hours. For simplicity, we assume all delivery is occurring face-to-face which will also provide more robust results. This implies that over the next four years, the 644 new operators will demand 32,844 days from accredited trainers to complete their certifications.

## 8.2. Current Capacity

**There appears to be sufficient capacity to train needed operators over the next four years.**

Based on interviews with three RTOs, there are currently 13 accredited trainers available that can provide subsidised training. Accounting for the fourth RTO active in the market, and assuming the availability of contractors, we approximate an average of 15 accredited trainers available in Queensland, at full capacity. RTOs generally stipulate a minimum class size of six, up to a maximum of twelve, hence we assume each trainer delivers to a cohort of six at any given time.

A full-time trainer can deliver 150 days of training per annum<sup>13</sup>. At six operators per cohort and across all 15 accredited trainers, this translates to 13,500 days of accredited training delivered per annum in Queensland at full capacity. Assuming a certification requires 50 days of time from an accredited trainer, this comes out to 270 certifications delivered per annum, or 1,080 over four years. Conceptually, there is sufficient capacity to supply the relevant certifications and meet training demand over the next four years.

It is assumed that every trainer has the skills and experience to deliver all the units required by operators. This may not be the case as the accredited trainers come from different backgrounds and specialisations, and have varying levels of availability. The level of competencies has not been assessed by this report. Further, RTOs may be engaged in fee for service work in other states and territories, hence their capacity to deliver subsidised training in Queensland is likely to be different to their full capacity on paper.

## 8.3. Evaluation of the Training Surplus and Its Limitations

**The current training sufficiency may diminish over time as future market requirements begin to require additional training capacity.**

To deliver this training nine trainers will be needed to meet the underlying demand and the expected turnover of staff. As noted previously, this estimation assumes that all trainers will be able to deliver all the courses which may not be the case in reality. While these figures suggest the industry is well-equipped to meet the market's current needs, they do not consider the upskilling requirements for experienced workers already holding some or no qualifications—a key factor in enhancing retention

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<sup>12</sup> One working day is equivalent to seven hours.

<sup>13</sup> We assume that of the 220 working days per year, 150 are dedicated to training and the remainder are for preparation, marking, travel and various other admin.

rates. Furthermore, the challenge of providing training in remote areas could impact RTOs actual delivery capabilities across the market.

Although there may be a training surplus in terms of Certification II or III training under the current packaging rules, councils remain hesitant to release operators to acquire qualifications for a number of reasons. One reason is the lack of funds, but equally significant is the absence of legislative requirements. There is no requirement for water and wastewater operators to be qualified, and therefore, councils are not compelled to incur costs and lose active operator hours for the time to attend training (typically several days). The competition for funding in training within Councils can lead to funds being diverted toward compliance or regulatory based training, which is mandated, at the expense of operator training, which is not. In regional councils, operators are responsible for multiple tasks, such as gardening, cleaning, and other technical duties. Their absence is felt in multiple departments.

In March 2024, the Federal Government announced reforms aimed at easing current rules for trainers and assessors in the Vocational Education and Training (VET) sector. These changes will allow more experienced industry employees and experts to support qualified trainers and assessors, which is expected to address workforce challenges in the sector, including those in the water industry. To alleviate current pressures on the VET workforce and provide more immediate benefits to the sector, some changes to the current Standards for Registered Training Organizations (RTOs) will be implemented before the revised Standards are set to go into effect in January 2025. These early changes will focus on areas that have garnered broad sector support through previous consultations and are designed to minimize burdens on RTOs. This coordinated effort reflects a proactive approach by the government to address workforce challenges and support the ongoing development of the VET sector.

#### **8.4. Highlighting Remote Training Challenges: First Nations Communities Training Needs**

**Provision of remote training is a challenge that must be addressed to meet the training needs of First Nations communities.**

The July 2022 gap analysis by Queensland Health on 17 First Nations councils underscores the acute challenge of providing training in remote areas. It identified substantial training needs in key competencies for numerous staff, including:

- Dangerous Goods training for 96 staff
- Flushing Water Mains training for 95 staff
- Sample & Test Drinking Water for 82 staff
- Hypochlorite Disinfection for 75 staff

Recommendations have been provided, to consider adjusting training for more flexibility to accommodate these training needs in the least intrusive manner.

## **9. Key Findings**

This section analyses the critical factors shaping workforce training needs and the uptake of the NWP and workforce development initiatives for Queensland's water industry.

## Technological Advances

The water industry's digital transformation has increased the importance of skills related to Supervisory Control and Data Acquisition (SCADA) systems, remote monitoring, and drone operations. Stakeholders identify change management as crucial for enabling staff to embrace new technologies and methodologies, indicating a gap in the National Water Package's coverage of emerging tech skills. This gap suggests a need for non-accredited or specialised training from external providers, such as drone companies or software developers, to ensure staff proficiency with new tools like monitoring software. Additionally, the potential of artificial intelligence and wearable technology to boost productivity and facilitate remote operations represents a progressive direction for workforce training within the sector.

## Legislative Reform

Recent legislative reforms and the introduction of Jobs and Skills Councils (JSCs) mark a significant shift in Australia's VET sector, potentially affecting the water industry's training landscape. Efforts are underway to enhance training quality, recognise micro-credentials, and support Closing the Gap initiatives. However, the transition to JSCs introduces uncertainty, with unclear operational structures and the impact on training provision still to be fully understood, highlighting the need for adaptability in the sector's approach to workforce development.

A 2024 report, titled "The delivery of VET in regional, rural and remote Queensland" published by the Education, Employment, Training and Skills Committee, focused on improving access and outcomes for remote-based Queenslanders, especially First Nations peoples, in accessing higher education. The committee received more than 30 submissions, including a statement from *qldwater* highlighting some of the challenges facing the industry. The report investigated and offered recommendations pertaining to TAFE shortages and other delivery mechanisms which inform the discussion in this section.

## Attracting Talent in an Aging Workforce

Incorporating stakeholder feedback, it's evident that the water industry faces continuous and escalating demand for skilled personnel due to steady needs from water service providers and increasing attrition rates. This challenge is compounded in coastal, regional, and First Nations areas, where an older workforce predominates, amplifying recruitment and retention challenges. The situation is further strained rural and remote areas, where competition with industries such as mining exacerbates the difficulty in offering competitive salaries and retaining staff.

Expanding recruitment strategies from just school leavers to include individuals from diverse backgrounds, such as the Defence Force, can enrich the talent pool, as suggested by stakeholders. Other potential sources of labour include career-changers, particularly those from related industries such as plumbing, or from other areas within council, such as parks and gardens.

Post-COVID, operational flexibility has significantly shifted, introducing flexible working hours and varied shift arrangements to accommodate worker preferences and enhance work-life balance. Councils are actively adapting their workplaces to be more attractive by offering such flexible conditions, focusing on employee value propositions and workforce planning.

Cultural and generational shifts in workforce demographics and expectations around work-life balance, job satisfaction, and social impact necessitate that the water industry adapt its recruitment strategies to meet these evolving values. This approach not only addresses the immediate challenges of attracting and retaining talent but also ensures the industry's resilience and capacity to fulfil its critical role in public health and environmental sustainability.

These dynamics underscore the critical need to attract and retain skilled workers within the water industry, highlighting the importance of increasing the sector's visibility and promoting it as a viable and attractive career choice. Rapid technological advancements necessitate evolving skill requirements, further complicating the attraction of candidates with the right technical competencies. The industry's competition with other sectors for skilled labour, especially in roles requiring technological, engineering, and environmental science expertise, impacts vacancy rates and the sector's appeal.

### **Financial Barriers in Accessing Training**

Following the departure of TAFE from the water training landscape, two private RTOs in Queensland, enhanced by the inclusion of two new entrants, have strategically stepped in to address the resultant void. These entities are the only providers of subsidised NWP in Queensland with other providers currently unable to access the Skills Assure Suppliers (SAS) platform. In the Education, Employment, Training and Skills Committee's report for the delivery of VET in regional, rural and remote Queensland, a significant number of submitters expressed that the current pool of Skills Assure Suppliers is too limited with respect to certain types of skills, particularly water management and wastewater operations, which are in high demand by local government.

In their submission to the Education, Employment, Training and Skills Committee, *qldwater* stated: "The fact that the only public provider of training in the NWP has been able to stop delivering that training speaks to a landscape or framework that is not operating in the way that it should ... It underlines that delivery of training in this training package needs State Government support". Given that there is no longer a public provider for the NWP in Queensland and that new providers cannot access the skills subsidy, students and water providers are left paying full fees for training services. This stress is further amplified by the upfront payment structure utilised by private RTOs, fostering considerable financial barriers that prevent the flow of skilled operators into the water service workforce.

### **Unpredictable and Indeterminate Training Demand**

#### **Lack of Mandatory Training Requirements**

The lack of a requirement for training for water and sewage network operators limits NWP training demand, despite broad industry support. RTOs that are looking to expand product offerings in the market grapple with the dilemma of significant investment in training material development, which may not yield returns due to fluctuating training demand influenced by workforce instability and competing priorities within water service providers. The lack of a regulatory driver makes the market very thin and affects the profitability of an RTO and is the major barrier to entry of new RTO's.

#### **Water Service Provider's Ability to Release Staff**

Stakeholders report that water service providers can face significant challenges in scheduling training without disrupting plant operations, compounded by high vacancy rates among operators. These vacancies intensify the pressure on current teams, leading to heightened fatigue and burnout. For this reason, water service providers are hesitant to release staff.

#### **Efficiency Challenges in Skills Assessment and Recognition**

Councils often face challenges conducting Training Needs Assessments (TNAs) for NWP training due to limited understanding of the package, often defaulting to past practices. This can often lead to increased preparation time to clarify requirements and in some cases, selections not aligned with current needs, incurring costs without gaining relevant knowledge.



In addition to efficiency concerns, inaccurate TNAs implies that operators may fail to gain relevant knowledge pertaining to the appropriate or optimal maintenance of assets, threatening the lifespan of valuable infrastructure. Stakeholder feedback underscores organisational support for water industry training often being outdated, creating a disconnect between the training provided to operators and the ageing infrastructure.

The Recognition of Prior Learning (RPL) process is a valid way of assessing credentials of existing and skilled workers joining the sector. To be effective, an RPL process needs to assess evidence of competency and currency of knowledge needs to be satisfied. From an ASQA perspective, generally training is considered current when it occurs within one year of the practical application of skills.

## **Dispersion of Industry and Small Service Providers**

### **Building Training Capacity in the Absence of TAFE**

In their report the Education, Employment, Training and Skills Committee stressed the importance of TAFE Queensland in delivering training in regional, rural and remote areas, recommending a sustainable funding model to allow TAFE Queensland to operate in thin markets where required. Following the departure of TAFE from the water training landscape, it has highlighted the criticality of private RTOs in filling this void. The remaining private RTOs in Queensland, have committed to augmenting training capacity and crafting new educational content, thereby broadening the spectrum of training choices available within the water sector. Their efforts are marked by established partnerships and the formulation of comprehensive strategies to scale their offerings in alignment with anticipated demand. This includes initiatives to secure additional trainers and the flexibility to modify curricula as required. This development is a promising market-led effort to sustainably meet the training needs of industry, however there is some lead time anticipated in scaling up the capability of the new RTOs.

### **Logistical and Financial Challenges of Training Delivery**

Face-to-face training is favoured for its higher completion rates and learning outcomes, despite challenges in remote areas. Wait times for training have increased from 3-4 to 6 months due to demand, with start times needing negotiation, causing delays and frustration.

Digital learning platforms are identified by stakeholders as increasingly important in training delivery, yet they face obstacles regarding connectivity in remote regions and compatibility with current workforce demographics. Training methodologies must adapt to support diverse learning preferences and ensure accessibility across different locations. Critiques of online training's efficacy are particularly centred around the need for hands-on application. However, stakeholders highlighted that seasoned personnel seeking formal recognition of practical skills could be an effective use case.

Accessibility and cost challenges are significant barriers to training in remote locations. Workers in these areas face difficulties due to geographic isolation and a scarcity of local training resources, complicating access to necessary education. Moreover, the remoteness often leads to increased costs for training, necessitating additional expenses for travel, accommodation, and specialised instructional materials or technology required for effective learning.

### **Common-use Centralised Training Facilities**

The discussion on training delivery models reveals a preference for centralised training locations, attributed to the benefits of resource allocation and the provision of richer learning experiences. However, the diversity and specificity of water treatment technologies pose significant challenges to this model, suggesting a need for more adaptable and location-specific training solutions. Support for

training in remote locations through the engagement of mentors or mentor teams, possibly facilitated through a retirement transition program, was recommended as a viable strategy to address these challenges, ensuring training accessibility and effectiveness across varied geographic locations.

### Collective Training Efforts

Initiatives such as the QWRAP Water Industry Worker program - Queensland's most extensive collective training effort - has successfully fostered collaboration between councils, showcasing the power of joint efforts. These, however, also have challenges. Water Service Providers are challenged by the need for long travel to attend training, affecting small teams essential for 24/7 services, and difficulties meeting minimum cohort numbers for specialised training units, increasing costs.

RTOs face hurdles in coordinating training with councils, due to the logistical complexity of gathering the necessary training cohorts and administrative demands. Managing detailed evidence submissions for funding compliance and adhering to strict standards is challenging, often feeling restrictive. Financial and contractual disputes arise from class size and delivery plan variations, underscoring the need for clear communication and agreed authority in program management. Additionally, there are misunderstandings about training requirements, indicating a gap in awareness of the limitations and standards RTOs must follow. Centralising requirements and standardising documentation would go a long way toward streamlining the processes.

Despite these issues, stakeholders praised the outcomes of the program. Beyond workforce training, Councils have benefited from shared operational insights during training, leading to practical improvements. Its potential expansion into an alumni network could also enhance continuous learning and connections.

## Facilitating Flexible Accreditation

### Micro-credentials

Micro credentials offer a flexible, targeted way to close specific skill gaps, adapt to technological advancements, and meet immediate training needs without the commitment required for full qualifications. This can drive the industry forward by ensuring workers quickly gain the skills needed for evolving job roles, thereby enhancing workforce agility and responsiveness to industry changes.

### Training Packaging Rigidity

In their submission to the committee, *qldwater* outlined the inflexibility of current packaging rules that prevent access to subsidised training. In remote and regional areas, some staff are required to work in multiple disciplines (water, sewerage and networks) and hence require additional training in specific units of competency (UoC). This is made difficult or impossible as many UoC are not funded unless part of a larger certification. It is important that subsidised training under packages be flexible to accommodate future training needs and address skills gaps in the workforce.

### Cultural Considerations for First Nations

The specific issues and requirements of Aboriginal and Torres Strait Islander Peoples need to be considered and accommodated in the delivery of VET. For example, there lies significant benefit in being able to keep First Nation Peoples on country for both training and return/ entry into the workplace. This requires a collaborative and adaptable approach in the development and delivery of training material.

## **Motivational Dynamics: Organisational Culture, Training Perception and Remuneration**

This barrier underscores the critical role of remuneration and the perception of training within organisational culture in shaping employees' motivation towards learning and development. It highlights the necessity of aligning training initiatives with both career advancement opportunities and recognition of skill competencies to foster a supportive learning environment.

Stakeholder feedback emphasises the importance of continuous professional development, particularly highlighting the positive impacts reported by long-tenured workers upon completing qualifications. Such professional development leads to greater engagement and a sense of investment from both employers and employees. However, there is a noted discrepancy in the perceived necessity of these qualifications, with some stakeholders indicating that while seasoned workers value the formal acknowledgment of their skills, they also view training and certifications as more suited to new entrants. This discrepancy underscores the need to frame training initiatives as a means of enhancing existing competencies, thereby validating the experience of long-serving employees.

The discussion around remuneration reveals a lack of direct financial incentives tied to the completion of qualifications, as reported by stakeholders. This lack of reward for training participation highlights a significant motivational barrier, deterring employees from engaging in further learning opportunities. There's a clear need for organisations to better integrate training outcomes with tangible benefits, such as salary increments or career advancement, to incentivise professional development effectively. The newly developed *qldwater* and Local Government Association of Queensland (LGAQ) human resources/industrial relations toolkit seeks to address this issue, linking operator remuneration back to recognition of skills and development, within the existing award structures used in local government.

The relationship between professional development and maintenance practices underscores a broader motivational factor: the impact of organisational attention to infrastructure upkeep on employee training motivation. Stakeholders point out that when organisations prioritise maintenance and operational improvements, it fosters a conducive environment for learning and development. This environment both motivates employees to engage in professional development and enhances their receptiveness to implementing new knowledge and practices learned through training.

## 10. Conclusion and Recommendations

This section presents recommendations for the Queensland water industry, based on existing data, insights from RTOs and team members of workforce initiatives (Table 9). These suggestions aim to address identified skill and training gaps, enhancing workforce capabilities critical for water service delivery and infrastructure management. Acknowledging the absence of input from water service providers, further engagement is deemed essential to complete the assessment and refine strategic directions.

Table 9: Recommendations for Queensland Water Industry Workforce Development

Item	Specific Aspect Addressed	Suggested Action
<b>Adapting to Technological Advances: Integrating Modern Technologies into Water Industry Training</b>	Recognition of the progressive direction of technology upgrades in plant operations within the water sector and the necessity for inclusion in the NWP.	<ul style="list-style-type: none"> <li>- Actively monitor emerging technologies and operational advancements within the water industry.</li> <li>- Advocate for including these modern technologies in the NWP to BuildSkills Australia and ensure the workforce training aligns with current and future industry needs.</li> </ul>
<b>Attracting Talent in an Aging Workforce</b>	Emphasises targeted recruitment, comprehensive training programs, and industry visibility to attract new talent, while fostering partnerships for a sustained talent pipeline, addressing the industry's challenge in filling high vacancy rates with skilled personnel.	<ul style="list-style-type: none"> <li>- Collaborate with High Schools to promote the water sector as an essential employment opportunity</li> <li>- Invest in micro-credentials to ensure that existing operators have learning pathways to ensure an effective match between their skills and the infrastructure they manage.</li> <li>- Develop affordable training opportunities to target high school graduates that facilitate entry into the industry</li> <li>- Support the QWRAP Program to implement a future focus, aiding regions to help them attract new talent.</li> <li>- Develop fee-free training options (similar to nursing) offered to high school graduates to provide them with Certificate III training to enter the industry.</li> </ul>

Item	Specific Aspect Addressed	Suggested Action
		<p>(Boot Camp)</p> <ul style="list-style-type: none"> <li>- Simulated training hubs – not requiring employment with a service provider to access them would facilitate school entry/access to the sector</li> <li>- Implement Local Government or QWRAP Region recruitment campaigns and comprehensive training programs that target individuals from diverse careers/backgrounds. This work has been done on a national level by WSAA and AWA, who have developed a water industry Employee Value Proposition for the Water Industry and associated collateral.</li> <li>- Enhance employer branding to highlight the industry's contributions and innovations</li> </ul>
<p><b>Financial Barriers in Accessing Training</b></p>	<p>Addresses the inability of RTOs to access the SAS platform and the mechanisms by which subsidies are passed on to training recipients.</p>	<ul style="list-style-type: none"> <li>- Evaluate inefficiencies and streamline processes for RTOs to enter the SAS platform to expedite approvals, including alternative financial assurances.</li> <li>- Improve flexibility in training subsidy policy to recognise the needs of multidisciplinary teams and allow access to more units of competency.</li> <li>- Review the financial assurance models for determining the number of SAS allowed to service the water sector</li> <li>- Review RTO Framework Contract for charging upfront fees and shifting the financial burden to councils; effects the volume of training completed</li> <li>-</li> </ul>
<p><b>Unpredictable and Indeterminate Training Demand</b></p>	<p>Addresses the lack of mandatory training requirements and the gap in comprehensive training needs analysis among councils, particularly in smaller entities. This strategy aims to facilitate more consistent training demand and</p>	<ul style="list-style-type: none"> <li>- Introduce legislated mandatory qualifications for water industry operators</li> <li>- Enhance Training Needs Analysis (TNA) processes to ensure training is matched with modern infrastructure and treatment processes at a local level by:</li> <li>- Conducting operator competency assessments as part of Drinking Water Quality Management Reviews as a training opportunity for water service</li> </ul>

Item	Specific Aspect Addressed	Suggested Action
	<p>accurate identification of training needs, consequently improving the planning and execution of training programs that increase operator competency and protect the life of assets.</p>	<p>providers</p> <ul style="list-style-type: none"> <li>- Developing a Whole of State data capture tool that identifies skill/training need requirements to individuals, employers and government agencies</li> <li>- Streamlining TNAs with templates</li> <li>- Considering training package development in light of asset life protection</li> </ul>
<p><b>Dispersion of Industry and Small Service Providers</b></p>	<p>Recognise and support the critical role of private RTOs in meeting specific and localised demand while acknowledging the effectiveness of TAFE.</p>	<ul style="list-style-type: none"> <li>- Address TAFE policies so that TAFE's role as a provider of last resort is aligned with regional and remote offerings and appropriately balanced with private offerings</li> <li>- Evaluate funding allocations between TAFE and more geographically dispersed providers to support training that is more widespread across regional and remote QLD</li> <li>- Consider government-developed training package resources so that best practice materials are available to all and consistent across providers</li> <li>- Consider a subscription basis for training materials to expand and maintain RTO offerings. These funds can be managed through the Industry Skills Advisor and prioritised through the ISA consultative process.</li> </ul>
	<p>Addresses training accessibility in remote areas, circumventing logistical and cost challenges and facilitating equality of access</p>	<ul style="list-style-type: none"> <li>- Consider appropriate recognition in training subsidy platforms regarding distances and travel costs to remote communities, whether borne by the employer or RTO, including making Location Loading available to an entity that is sending trainers or trainees to a hub location</li> </ul>
	<p>Exploring the feasibility and benefits of centralised training facilities and collective training efforts, considering the diversity of water treatment technologies,</p>	<ul style="list-style-type: none"> <li>- Consider centralising requirements and standardising documentation to streamline approval processes for training, and salary adjustments for completion</li> <li>- Explore the feasibility of centralised common-use training facilities, focusing on adaptability for various locations and incorporating</li> </ul>

Item	Specific Aspect Addressed	Suggested Action
	access to vetted industry experts and the need for adaptable, location-specific training solutions. This strategy aims to improve the planning and execution of training programs.	mentorship for remote training support. <ul style="list-style-type: none"> <li>- Leverage the expertise of industry veterans by implementing a mentorship program to deliver technical guidance.</li> <li>- Funding of digital learning platforms to support continuing operator education</li> </ul>
<b>Facilitating Flexible Accreditation</b>	Developing micro-credentials to fill skill gaps and ensure alignment with NWP standards for credit recognition, enhancing the flexibility and responsiveness of workforce training to industry needs.	<ul style="list-style-type: none"> <li>- Work with the industry to develop micro-credentials and seek to align with credit for the NWP</li> <li>- Funding of micro-credentials or other non-accredited training in an online environment to support continuing operator education.</li> <li>- Consider quarterly or bi-annual Operator Events or roundtables to encourage knowledge transfer and exchange of best practices between organisations</li> </ul>
	Addresses the inflexibility of training packages to fill skill gaps	<ul style="list-style-type: none"> <li>- Consider funding more units of competency (UoC) under packaging rules, to reduce specific skills gaps.</li> <li>- Provide subsidised units of competency without requiring them to make up a full Certification.</li> </ul>
	Develop flexible and culturally appropriate training for First Nations people, eliminating a one-size-fits-all approach to training development	<ul style="list-style-type: none"> <li>- Co-designed training with First Nations (FN) communities – delivered appropriately for and by those communities</li> <li>- Eliminating the one-size-fits-all approach to training also has benefits beyond these communities for other operators</li> </ul>

Source: BGA Work Product

## Appendix I: Detailed Workforce Statistics and Trends

The following analysis of workforce size, demographics, and employment trends is from section 3 of the 2022 Urban Water Industry Workforce Composition Snapshot Report.

# 3. Workforce Statistics & Trends

### 3.1 Job Family Categories and Trends

Figure 3 represents the proportion of the total water industry workforce employed within each 'Job Family' in 2022. For 2022, Business Support (which includes all support functions such as finance, human resources, communications and IT professionals) was once again the largest job role category at 24%. Its place as the largest category has been consistent across reporting periods previously, but the percentage for this reporting period is significantly different from those identified in other surveys (2016 at 29%, 2018 at 35% and in 2020 at 34%).

Larger and extra-large respondents may have significant business support allowances compared to smaller sized entities which have limited business support resources, or no dedicated support functions at all. Whilst the picture may be broadly unchanged for those smaller entities therefore, latest responses show a decline in this job family predominantly within those large and extra-large respondents. This job family category also includes an estimate of full-time equivalent staff for local government providers that access these services through departments within a larger council structure.

The next largest combined Job Family category, at 36%, are the Water Operations roles which encompasses Water Operations – Civil (18%), Water Operations – Treatment Plant Operators (16%) and Water Operations – Dam (2%). Compared to the 2020 report, 2022 survey data shows a 9% increase for this combined Job Family category. There are no other notable changes from the 2020 to 2022 reporting periods.

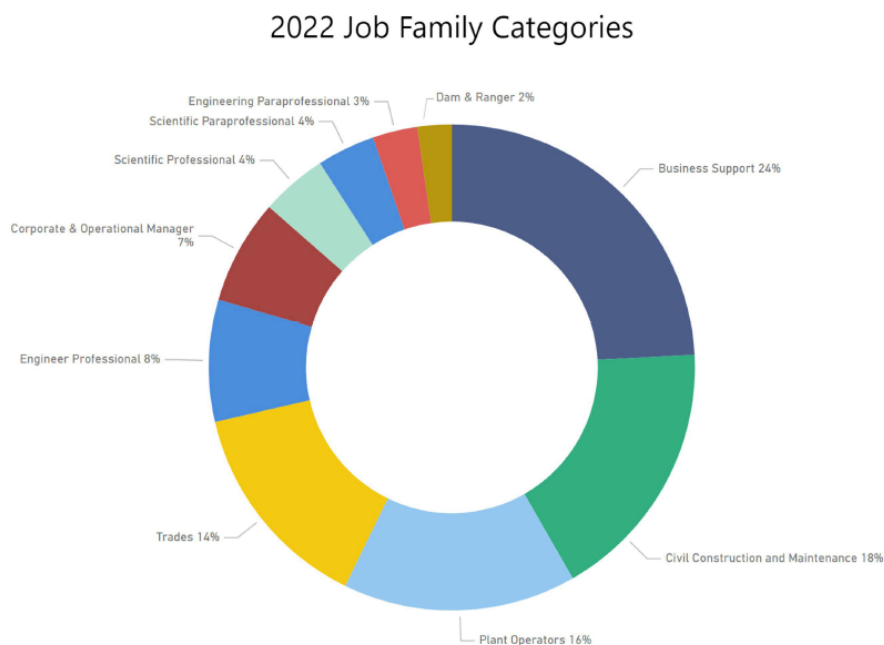


Figure 3: Job Family Categories 2022



Figure 4 provides an analysis of the proportion of employees within each Job Family Category across the past four reporting periods 2016, 2018, 2020 and 2022 respectively.

There appears to have been an adjustment in business support roles, after a sharp rise in 2018, reported previously as relating to significant recruitment in temporary roles for large scale IT and other projects in some larger responding organisations (*qldwater*, 2018).

Whilst the correction in the workforce subsequently may reflect adjustment after those projects were completed, nevertheless it is clear the trend continues downward.

From a high of 37% in that initial 2018 period, business support roles reduced to 34% reported by respondents in 2020, now falling to the 24% reported in 2022.

Notably also, a significant decrease in Engineering Paraprofessional job roles with a reported 7% occupancy in 2020 compared to now only 3% in 2022. This downward trend is reflective of wider trends and scarcity in this category.

The upward trend continues from 2018, through 2020 and to 2022 for Plant Operators (9% to 16% across the reporting periods), Civil Construction and Maintenance (recovering from 12% to 18% 2020 to 2022) and strong growth in Trades (7% to 14%) for those job roles. Further analysis of the reasons behind these changes is outside the scope of this report.

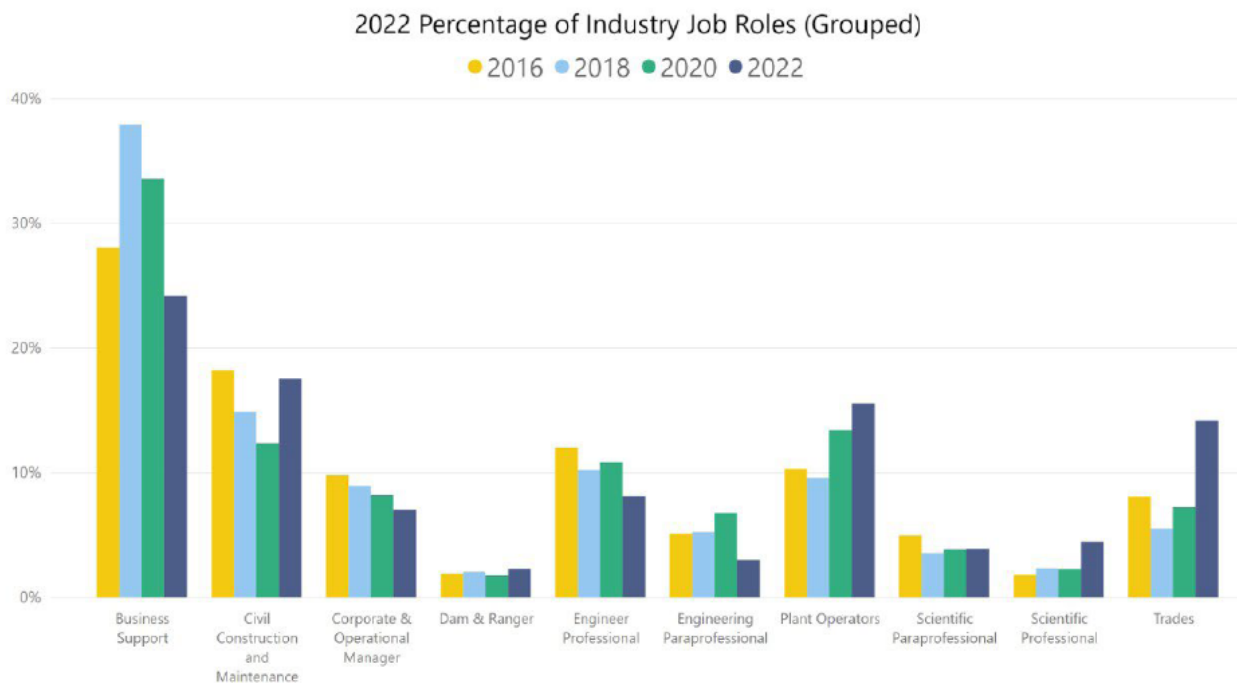


Figure 4: Job Family Category Trends 2016 - 2022

### 3.2 Age Profile

Figure 5 outlines the age profiles across seven Snapshot Reports from 2010 to 2022. The majority of the workforce is within the 31 – 60 age groups. This has been a consistent trend since reporting began in 2010. There is an upward trend for >20, and 21 - 30 age groups compared to 2018, increasing in 2020 and increasing again in 2022.

In previous reports, when respondents were presented with follow-up questions specifically related to age profiles, the following points were noted:

- Attempts to offer more traineeships and early career opportunities appear to have increased.
- These are often hindered by the inability of many organisations to offer permanent roles on completion of those traineeships. In a recent *qldwater* survey of water service providers, 100% of respondents indicated they were unable to guarantee permanent roles on completion of traineeships, unless a vacancy happens to exist at that time within their FTE count – or the limit applied by many employers on total number of staff.
- Irrespective, many reported low success rates in retention of school leavers, and better results when targeting hiring towards young people with some workforce experience. It was reported these cohorts were more likely to be attracted to positive aspects of working in the water sector, including challenging job roles with chance to learn and trouble-shoot, as well as a sense of performing an essential community service.
- Some organisations actively sought to recruit employees with existing trade qualifications, whether that trade was directly relevant to a water operations role or not.

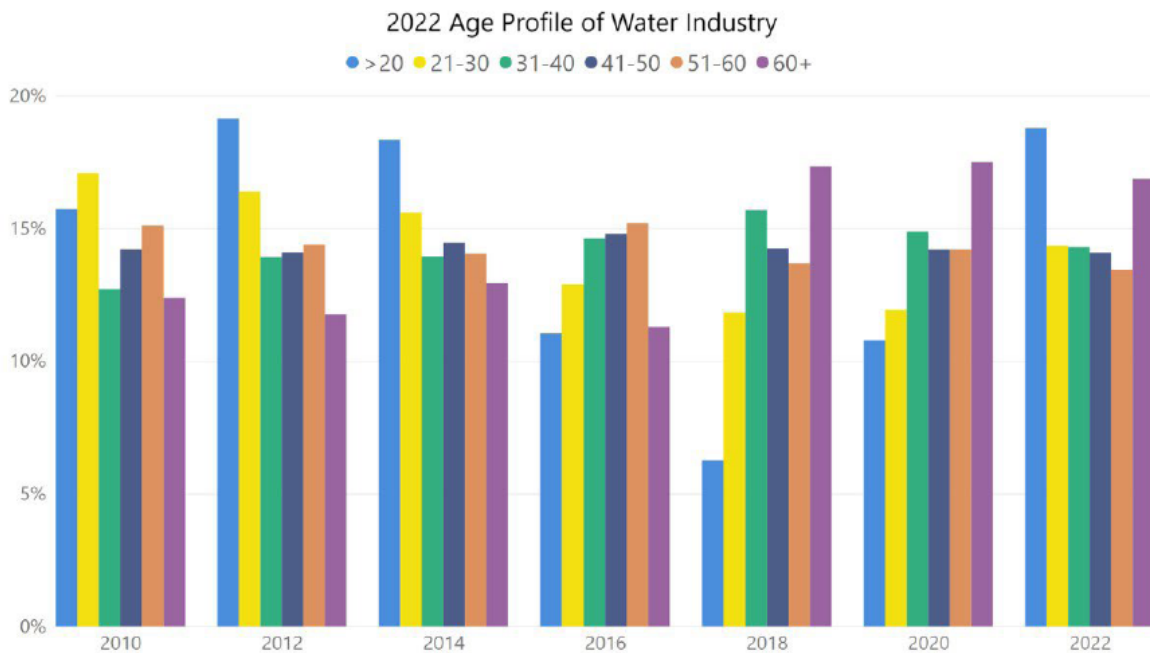


Figure 5: Age profile of Queensland Water Industry - comparison of 2010, 2012, 2014, 2016, 2018, 2020 and 2022 Snapshot Reports

### 3.3 Age Profile and Job Role Category

Figure 6 displays the age profile for each job role category in order to identify and highlight roles where an ageing demographic may pose a workforce risk.

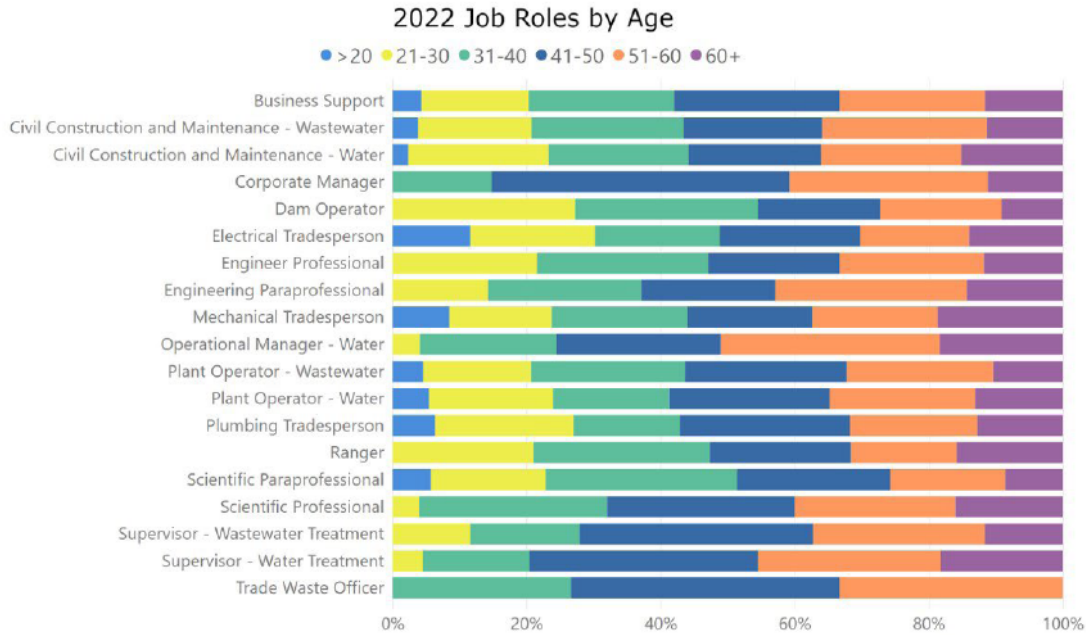


Figure 6: Age Profile by Job Role Category

Some job roles have seen little change in their age profile make up since the previous report.

Business Support, Civil Construction & Maintenance (both Water and Wastewater), Operational Manager Water, Plant Operator Water, Plumbing Tradesperson and Scientific Professional roles all remain largely unchanged in their age profile make up since 2020.

- Business Support continues to have the majority of roles taken by the 31–50-year age ranges (61%)
- Civil Construction continues to have relatively low participation at either end of the age ranges, mainly centered on age profiles between 31 and 60 years
- Corporate Managers are still mainly in the 41–50-year profile, with almost half the workforce responses in this age range (47%)
- There has been a 10% decrease in Corporate Manager role participants in the 51-60 age profile from 2020 to 2022
- Significant changes have taken place across the Dam Operator profile in the 2022 responses. Previously some 34% of this role was occupied by the 21-40 age profiles; in 2022 this has risen to 63%
- This looks to have taken place at the expense of older Dam Operators with 51-60+ cohorts reduced from 44% in 2020 to only 18% in 2022
- Both Electrical and Mechanical Trades have shown sharp rises in the youngest cohort age groups between 2020 to 2022 (4% to 11% and 2% to 8% respectively)
- Mechanical Trades showed a sharp decline from 34% to 22% in the 51-60 cohort from 2020 to 2022

- Plant Operator profile remains largely the same in Water and Wastewater, with the exception of the oldest bracket (60+) for Wastewater Operators, halving from 12% in 2020 to just 6% in 2022
- Rangers continue to reduce in age, with a 19% increase in the 3 youngest age profile brackets between 2020 and 2022, with a corresponding reduction in the 41-60 cohorts of 20%
- The majority of Scientific Paraprofessionals are also getting younger with 57% of roles in the 21-40 age fields (up from 41% in 2020)
- This has occurred predominantly at the expense of the 51–60-year-olds who have seen a reduction from 20% to just 9% between 2020 and 2022
- Supervisory roles – in Water Treatment has seen 21–30-year-old Supervisors increase from just 3% in 2020, to 9% in 2022, whilst there has been a downshift in 60+ Supervisors in the same period from 20% to only 7% in this report
- Trade Waste Officers have seen a 24% growth in the 21-40 age ranges, where there were previously no respondents in these roles in 2020
- This has been matched by a 25% growth in 60+ aged respondents in 2022 where, once again in 2020, there were no roles satisfied by this age profile



### 3.4 Gender Profile

Figure 7 shows the proportion of male and female employees in the workforce, how it is changing over time and how it relates to gender balance for all industries across the State using ABS data.

For this report, Queensland data was gathered from the Australian Bureau of Statistics to compare water industry gender balance to all industries, reflected as a trend line on the graph.

While the water industry remains male-dominated, the gap between male and female employee percentages is closing, reflecting the recognition of gender equality, and the work undertaken by organisations to make the industry more inclusive.

The percentage of female employees across the State has increased by 8% from 2020 to 2022, the most substantial increase since Snapshot reports began.

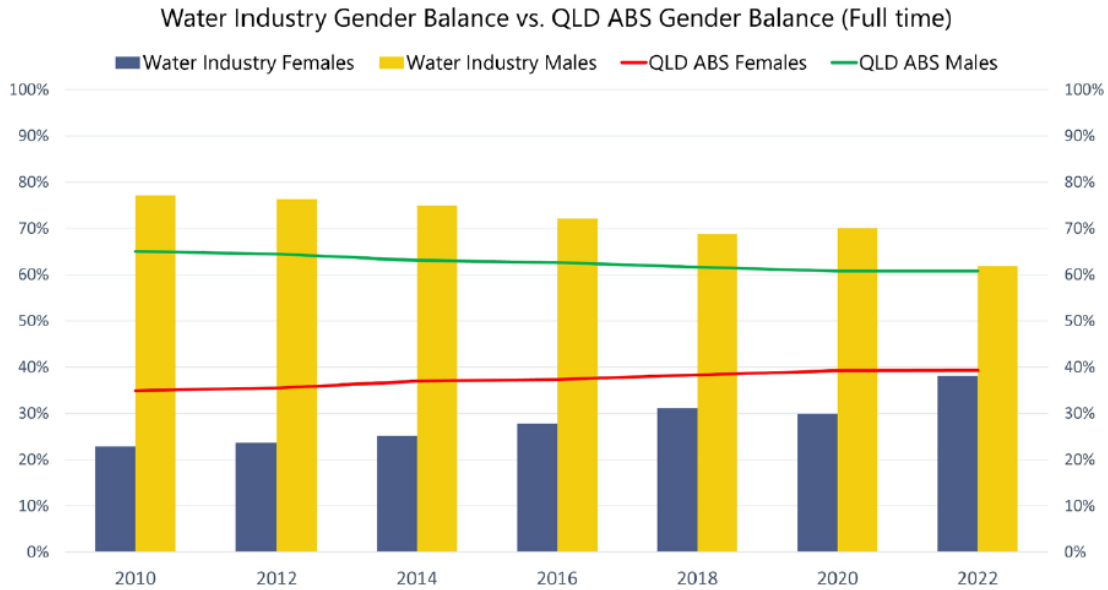


Figure 7: Comparison of 2010, 2012, 2014, 2016, 2018 and 2020 gender data

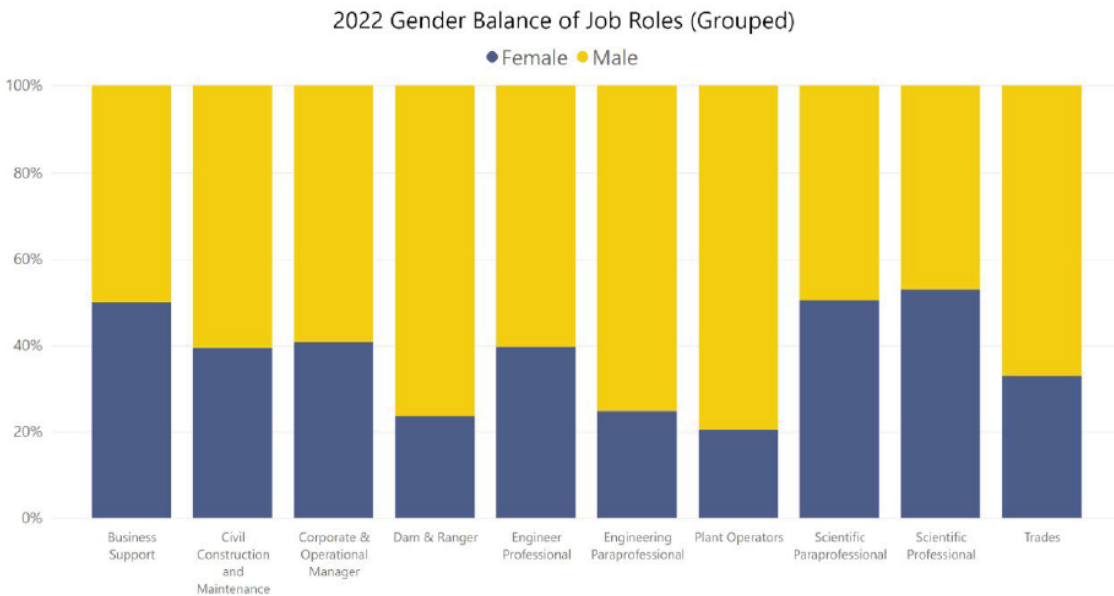


Figure 8: 2022 Number of males and females in each job family as a % of total

There have been some marked changes across gender balances when viewed through the lens of job roles between the 2020 and 2022 reports. The changes are most notable in these roles:

- Business Support - male uplift of 8%
- Civil Construction & Maintenance - female uplift of 37%
- Dam & Ranger - female uplift of 18%
- Trades - female uplift of 32%
- Engineer Professional - female uplift of 18%
- Plant Operators - female uplift of 13%

All job roles across the industry saw an increase in female participation with the exception of Business Support – the only role to show increased male participation between the two reporting periods.

In line with current community expectations, the next report in 2024 will include the collection of broader diversity metrics including, but not limited to, those who identify as non-binary in gender statistics, where that information is collected by employers.



### 3.5 Job Categories and Qualification Levels

Qualifications data across all job roles has been historically difficult to obtain so this report has focused on the qualifications for key industry job roles. Figure 9 shows all National Water Training Package (NWP) qualifications held by Water and Wastewater Treatment Plant Operators and Supervisors.

The NWP includes four qualifications made up of 169 units of competency:

- Certificate II in Water Industry Operations
- Certificate III in Water Industry Operations
- Certificate IV in Water Industry Operations
- Diploma of Water Industry Operations

The sector understands that the existing NWP Units of Competency, Skills Sets and Qualifications need review. This will enable the VET System to better recognise or encapsulate new or other forms of learning such as micro credentials, recognition of prior learning and on the job experience.

With those elements accounted for, it is anticipated this will better reflect the skills that an individual possesses and what level of qualification or competency should be assigned accordingly.

This should also recognise the skills and training that the industry deems to be the most appropriate for the workforce of the future.

With the newly established Jobs and Skills Councils (JSCs) coming into being in 2023, the former Industry Reference Committees have been replaced. The remit of training package development will sit within those newly created JSCs, as will oversight of RTO delivery.

**qldwater** will seek membership on the appropriate committee within the relevant JSC when the organisational structure is formulated. There is a significant impact from the delays in this process with uncertainty prevalent across both industry and State Government. The extent of VET reform is also unclear at this time and the frameworks and mechanisms that support VET delivery at both State and Federal levels may also be subject to change. It is ambiguous at this moment as to how those functions will integrate and interact.

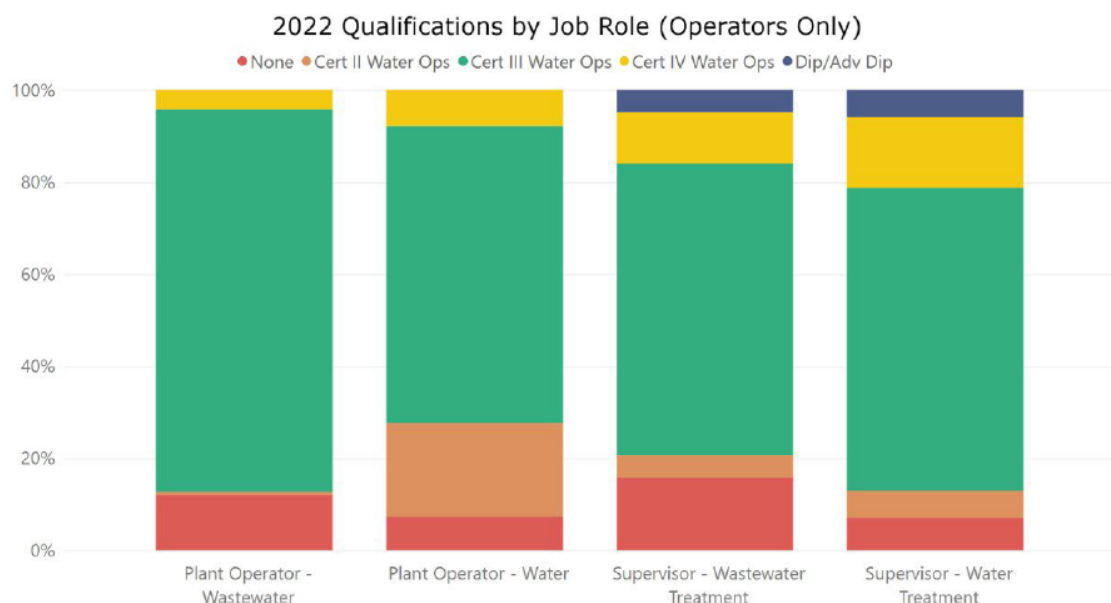
The Certificate III in Water Industry Operations is the most widely used qualification in the training package and becoming the most widely held qualification for water/wastewater treatment operators operating conventional treatment systems.

In 2022, 83% of Wastewater Treatment Plant Operators and 65% of Water Treatment Plant Operators, (from organisations that responded to the survey), hold a Certificate III in Water Industry Operations.

The levels of this qualification held by Operators increased from 65% for Wastewater Treatment Plant Operators and 59% for Water Treatment Plant Operators respectively, in the 2020 survey responses.

Both the Certificate II and III qualifications currently receive Priority One funding from the Department of Youth Justice Employment, Small Business and Training (DYJESBT) under the User Choice and Certificate 3 Guarantee programs.

Certificate IV and Diploma level qualifications also receive subsidy support from DYJESBT under the Higher-Level Skills (HLS) funding program. Training in the 10 skill sets from the NWP are also supported by HLS subsidies.



**Figure 9: NWP qualifications held by water/wastewater treatment operations employees (for responding organisations)**

Qualifications by job role data show interesting changes taking place across the workforce respondents between the 2020 and 2022 surveys. It reflects the increasing “newness” (lack of knowledge and/or experience) of the industry that members speak to in their engagement and interactions with **qldwater**.

This newness is reflected in the growing numbers without qualifications at both Operator and Supervisor levels.

**Without Qualifications:**

All roles, except for “Plant Operator - Water”, have seen increases in the percentage of staff with no qualifications at all between 2020 and 2022:

- Plant Operator – Wastewater                      increased from 4% to 12%
- Plant Operator – Water                              7% with no qualifications
- Supervisor – Wastewater Treatment            increased from 5% to 16%
- Supervisor – Water Treatment                    increased from 0% to 7%

Whilst this may in part be attributable to a much larger response level in the 2022 survey, it identifies gaps in training across the workforce and may reflect the high vacancy rates. With no enforced standard for water industry workers, there is no requirement for staff to hold formal qualifications, allowing this status to prevail.

It may also suggest that wider use of Recognition of Prior Learning (RPL) could better evidence skill sets individuals may possess as a result of career progression, development and practical experience.

**Certificate II:**

There have been reductions across all positions in the percentages holding Certificate II qualification, apart from “Supervisor – Wastewater Treatment”, which showed a 5% increase from 2020 to 2022.

It seems likely that individuals possessing Certificate II qualifications in this capacity have obtained certification on route to progression into supervisory roles as careers have developed.

(See also Cert IV and Diploma section for further commentary).



The reductions across all other roles reflect the broad consensus that Certificate II, for numerous reasons, is not the qualification most utilised by industry at this moment in time.

Challenges around capacity building, access to training subsidies, RTO access and availability, unit of competency content and the length of time taken to obtain qualifications, have all been cited as reasons behind the shift away from Certificate II training.

Anecdotally some water providers still feel that Certificate II could still be a better pathway for new industry entrants, rather than a direct jump to Certificate III; a decision sometimes driven by resourcing constraints, rather than entirely by learner outcomes.

### **Certificate III:**

There is also demonstrable representation of industry's alignment and coalescing around the Certificate III qualification, with all roles showing uplift in percentages where this Certification is held:

- Plant Operator – Wastewater                      increased from 65% to 83%
- Plant Operator – Water                              increased from 59% to 65%
- Supervisor – Wastewater Treatment              increased from 49% to 63%
- Supervisor – Water Treatment                      increased from 53% to 66%

Plant Operators (Water and Wastewater), both show reductions in Certificate II qualifications and uplifts in Certificate III, which continues to become the qualification of choice for these roles for most of the industry. This has come to be seen by industry as the qualification that encapsulates within it most of the skills that Operators need.

Issues around access to subsidised training and RTO availability, as well as an organisation's ability and capacity to release staff for training, have all been cited in engagements by members as also part of the reason for the move toward Certificate III.

With limited access to subsidy and difficulty in engaging RTOs for delivery, Certificate III represents "best value" given these constraints.

A combination of market conditions and qualification content continues to see the growth of Certificate III in Water Industry Operations, being held across the workforce.

### **Certificate IV and Diploma:**

In looking back at the "Supervisor – Wastewater Treatment" role it is also noteworthy that this job role has seen the most substantial decrease in Diploma qualifications held, from 39% in 2020 to just 5% in 2022.

Respondents holding this qualification have substantially reduced in the reporting periods, perhaps indicating occupational detachment of these individuals from the sector.

Current vacancy data shows whilst there are now only a small number of vacancies reported from respondents, the durations of vacancies are lengthy, showing the role is stubbornly difficult to fill once vacated.

Whilst there are existing subsidies that apply to the Certificate IV and Diploma, Water Skills Partners have expressed a need for these to be increased to provide higher subsidies to support providers challenged by tight training budgets to upskill operators into supervisory roles.

**glwater** has recently (2023) been successful in securing a 50% uplift in levels of subsidy from DYJESBT across both Certificate IV and Diploma level qualifications.

The support of DYJESBT in raising the subsidy levels reflects the needs of industry and will be well received by organisations with requirements for training in these qualifications.

### Training Context:

TAFE Queensland's complete withdrawal from delivery of training in the NWP in 2022 has only served to exacerbate issues around access to subsidised training for the industry. Given the challenges of the thin market, the somewhat unpredictable nature of demand for training, development and retention of trainers and the costs associated with updating course materials, TAFE Queensland took the view that delivery of the NWP was no longer viable for them as an organisation.

A recent report on the Queensland education sector by the Queensland Audit Office (2023) raises concerns over the financial sustainability of TAFE Queensland, finding that this remains at risk. It would appear that the public provision of NWP training in the State is no longer recoverable in its previous form.

As a result, subsidised training in the State is now only delivered by two private RTO organisations, only one of which is based in Queensland. Most water service providers rely on subsidies to be able to afford staff training at all levels.

There are some challenges in the mechanisms around training subsidies in Queensland, as well as the ways in which those mechanisms are now being applied. Mechanisms were designed with the intention of training being delivered, sign off from RTO and employer (recognising learning appropriately adopted by the student), enabling subsidy for training to be drawn down and passed to the RTO after provision of that documentation to DYJESBT.

This led to a position where RTOs were carrying costs associated with training delivery for a long period of time before any payments may be forthcoming, a position unsustainable for the training organisation.

Recipients of training have more recently been asked to pay for training in advance, with subsidy "refunded" once sign off has been completed. Councils asked to pay in full for training triggers different procurement processes (usually because of the amounts involved), further delaying training.

Some members who would normally rely on subsidy for training, unable to either get subsidised RTOs to respond to requests for training quotes and/or unable to receive training in a timely manner, have stepped outside of the subsidised training model altogether. They have had to use fee for service training to get staff trained in a timely, fit for purpose fashion to meet their needs.

The same factors causing pressure on recipients of training, also present challenges for RTOs in ensuring they too have appropriately qualified trainers to meet industry demand. The limited availability of RTOs and trainers is a growing problem for the industry and has been developing for some time.

The challenges of the thin market combined with the tyranny of distance and the constraints of the Local Government frameworks (which nearly all water providers in the State operate within), combine to mean training is both difficult and costly to access for all concerned, whether as a provider or recipient of that training.

The practical nature of the qualifications has traditionally driven a preference for face-to-face training delivery; however, the remote nature of many service providers means there are limited opportunities to access face to face training or it is prohibitively expensive, often with additional travel and accommodation charges and additional administrative overheads applied.

**qldwater**, through the Queensland Water Regional Alliance Program (QWRAP) helps facilitate training cohorts of operators from a range of councils within a region and this has been successful on a number of occasions in reducing training costs.

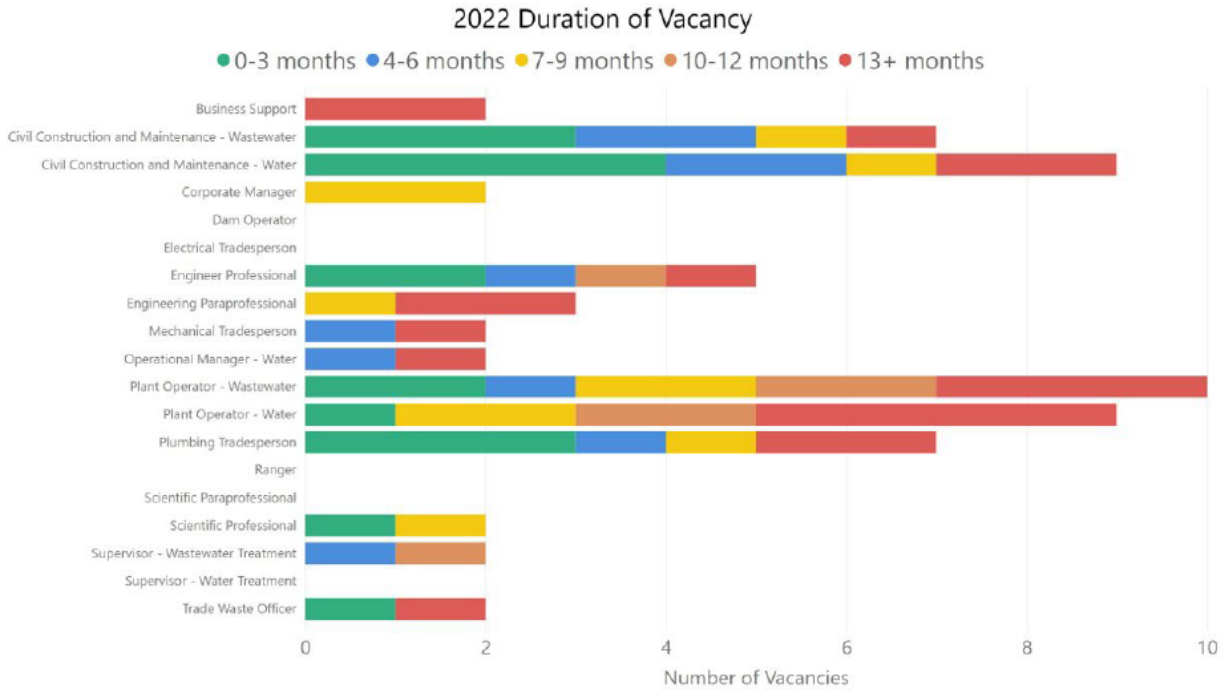
In addition, COVID-19 created an opportunity for the industry to engage in virtual skilling and training methods and there have been ongoing efforts by training providers to improve the quality of online training resources and engagement tools. There is a need to continue this innovative method of training and develop further innovations which allow more flexible delivery of training wherever possible.

These efforts and initiatives by organisations such as **qldwater** to provide alternative delivery methods for training and upskilling has allowed for greater engagement from staff in remote and regional councils and continues to encourage innovation.

### 3.6 Labour Hire, Vacancy Rates and their duration

For the first time in the 2022 survey, **qldwater** attempted to quantify the amount of Labour Hire used to 'back fill' positions, the number of vacancies across the workforce, as well as the duration (length to fill) of those vacancies.

Respondents took the opportunity to not only complete the task, but to also quantify the durations of vacancies; in some cases, these were more than 3-years in duration.



**Figure 10: 2022 Duration of Vacancy**

\* Please note, where no vacancies are shown, this is where respondents failed to specify the duration of a vacancy. There are no roles in the industry without vacancies, which is confirmed by figure 11.

The table shows both the number of vacancies and the duration of those vacancies. As an example, Plant Operator Wastewater shows ten (10) vacancies:

- 2 vacancies for a duration of 3 months or less
- 1 for between 4 and 6 months in duration
- 2 of between 7 and 9 months in duration
- 2 of between 10 and 12 months in duration
- 3 of 13 months + in duration

The data demonstrates that some degree of vacancy exists in all roles of the industry across the respondent base (33 respondents).

The data also reflects that the most significant vacancy rates exist in Plant Operators (both Water and Wastewater) – again reflective of engagement results with Water Skills Partnership members and the anecdotal feedback obtained during the most recent **qldwater** Water Connections Tour in May 2023.



**Figure 11: 2022 Directly Employed, Labour/Contract Hire and Vacancy Rates by Job Roles**

Vacancy rates in the Operator realms have been communicated as being as high as 40%-45% within individual organisations, with very lengthy vacancy durations. This is placing extreme stress on existing teams with increased levels of fatigue and burnout being mentioned in engagement pieces.

Supervisors and more senior team members are also having to cover operational roles and as an example often having to go on call to ensure adequate coverage. During the Water Connections Tour, Government stakeholders heard accounts of staff members being unable to take leave and sometimes having to work for continuous periods without the ability to have days off.

New legislation enacted in April 2023 (*Work Health and Safety (Psychosocial Risks) Amendment Regulation 2022*), now places a duty on organisations to manage psychosocial risks, which include high job demands, fatigue and excessive work hours.

The Code of Practice: *Managing the Risks of Psychosocial Hazards in the Workplace 2022 (Qld)* outlines proactive opportunities for prevention of psychological injury. (The Code is a preventative measure, while other WHS legislation comes into effect after injury has occurred). Workplaces have an obligation to take all reasonable steps to manage, mitigate and eliminate the risk of psychosocial harm.

This changes the dynamic and ensures that previous ways of working will need to be revisited and adjusted accordingly to demonstrate active risk management and compliance with the Code.

Vacancy rates in the Electrical and Mechanical Trade roles demonstrate the inability of Local Government entities to successfully recruit and retain these functions within the water departments/functions.

Competition for these trades is exacerbated by both the awards structures and the number of FTE roles available within the Council operational structures.

Many of these issues are also being felt in the larger utilities and bulk water providers in SEQ, who are not subject to those same constraints. This is likely to become more prevalent given the demands for trades as projects ramp up for the Olympic Games in 2032. There are also likely to be significant impacts across all engineering roles from these increased demands.



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