WAIHANGA ARA RAU
Construction and Infrastructure
Workforce Development Council

Water Services Qualification Review

Stage 1: Investigative Phase findings

October 2024

Preface

We want to thank everyone who provided feedback during **Stage 1: Investigative Phase** of the Water Services Qualification Review.

This was an opportunity for the water services sector and education providers to tell us what they thought about the current suite of Level 3 to Level 5 water services qualifications and standards, and development needs.

This feedback has been used to produce this insights report.

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Purpose of this report

Waihanga Ara Rau has completed Investigative Phase (Stage 1) of the Water Services Qualification Review (the review). Stage 1 gathered insights from the water services sector on seven qualifications and standards to identify what is working, what is not, and what is missing.

This report provides essential context for more detailed discussions on the development and review of water services qualifications and standards.

Oversight of Stage 1 was provided by a Water Services Tactical Reference Group (TRG) comprising representatives from Water NZ, Citycare Water, Water Industry Operations Group, Wellington Water, Watercare, NZ Trade & Industrial Waters Forum, Veolia Water, Kapiti Coast District Council, and Connexis.

The TRG has reviewed this report and the set of recommendations that inform Stage 2: Review of qualifications and development of associated standards.

Stage 1 involved engagement by way of surveys, discussions, and individual and collective submissions from various water services stakeholders. These stakeholders included:

- Local government water operators and communities
- contractors
- suppliers
- education providers
- recent and past graduates
- specialist technical and operator groups
- Taumata Arowai
- Other entities and sectors that seek either skills, knowledge and / or training on drinking water services, wastewater networks and compliance requirements. These include agri-businesses, owners of water supply networks for communities and rural schools, and those involved with water components supply, installation and verification.

Summary of key themes

Six key themes emerged from Stage 1.
These themes indicate that the water services qualifications investigated are not fit for purpose in their current form.

The key themes and their recommended actions were confirmed by the Water Services TRG.

Qualification specific feedback is set out in Appendix 1: Feedback on the qualifications

Key themes What we found	**Actions** What we will do
THEME 1 **The need for future fit, flexible, and adaptive educational products**	ACTION 1 Waihanga Ara Rau to work with the water services sector to undertake ‘discovery workshops’ to develop a comprehensive forward-thinking, Credentials Framework for the water services sector.
THEME 2 **Broader coverage of the water services environment**	ACTION 2 Waihanga Ara Rau to work with the water services sector to define ‘core’ minimum mandatory skill set for different water services environments and learner groups.
THEME 3 **Qualification parity with other professions and international jurisdictions, and workforce sustainability**	ACTION 3 Waihanga Ara Rau to work with the water services sector to establish the requirements that would support cross jurisdictional and practitioners’ parity, and workforce sustainability.
THEME 4 **Enabling other qualified practitioners to work on the water system**	ACTION 4 Waihanga Ara Rau to work with the water services sector to explore the skills, knowledge and competencies that support enabling other qualified practitioners such as plumbers to work on the water system.
THEME 5 **Investment into pathways that build community capacity**	ACTION 5 Wahanga AraRau to work with the sector to develop advice to TEC about opportunities to support delivery of education provision into communities that facilitates development of community capacity in drinking water, wastewater, and stormwater.
THEME 6 **Fostering iwi/Māori relationships on water management**	ACTION 6 Waihanga Ara Rau to work with the water services sector to develop skill standards that build knowledge and support engagement with te ao Māori in relation to wai.

Next steps

Stage 2 of the Water Services Qualification Review will focus on reviewing and developing qualifications and standards to meet the needs of the water services sector.

The key recommendation is that prior to Stage 2 being initiated, two discovery workshops aimed at reimagining the qualifications and pathways are needed. This will ensure that the review team works with a comprehensive forward-thinking, industry-endorsed framework when reviewing the suite of qualifications and standards.

Stage 2: Review of qualifications and development of associated standards will commence in the first quarter of 2025.

Timeframe for Stage 2 and Discovery Workshops

Event	Focus	Timing
Stage 1 - Investigative phase	Industry consultation	Complete
Discovery workshop(s) • Drinking water supply and treatment	Actions 1-4	Nov/Dec 2024
Discovery workshop(s) • Wastewater treatment • Trade waste	Actions 1-4	Feb 2025
Stage 2 - Review qualifications and development of associated standards.	Actions 5-6	Commencing first quarter of 2025

Background

Review of water services qualifications

All qualifications listed on the NZQCF must undergo periodic review to ensure they remain relevant, fit for purpose, and aligned with the needs of learners, industry, and stakeholders. Seven water services qualifications are now due for review. They are:

New Zealand Certificate in Water Treatment (Small Scale Systems) (Level 3) [Ref: 2240]
New Zealand Certificate in Drinking-water Treatment (Level 4) [Ref: 4138]
New Zealand Diploma in Drinking-water Treatment (Level 5) [Ref: 4139]
New Zealand Certificate in Wastewater Treatment (Level 4) [Ref: 4142]
New Zealand Diploma in Wastewater Treatment (Level 5) [Ref: 4143]
New Zealand Certificate in On-site Wastewater Management Systems Design (Level 4) [Ref: 4216]
New Zealand Certificate in Drinking-water Supply (Assessment) (Level 5) [Ref: 4223]

These qualifications represent two key areas of water infrastructure – drinking water and wastewater – which, along with stormwater, will continue to be subject to ongoing reform.

Findings from a May 2024 survey undertaken at the Water Industry Operations Group conference showed 40% and 33% (respectively) of respondents selected the **Level 4 New Zealand Certificate in Drinking Water Treatment with optional strand in Multistage Processes** and the **Level 4 New Zealand Wastewater Treatment with optional strand in Multistage Processes** as not meeting their needs. Stage 1 consultations further tested these findings.

Ongoing industry reforms and their impact on qualifications

Since 2019, the water industry has experienced significant change, including the creation of Taumata Arowai[1], an independent water services regulator. Taumata Arowai was to establish an authorisation framework to introduce requirements about what training, skills, and/or experience operators of drinking water and wastewater networks should have. This is to help ensure the safe operation of drinking water and wastewater networks. This authorisation framework was initially set to be established by 2026.

To allow for further collaborative work on the design and implementation of an authorisation framework Government has signalled its intention to extend this date to 2031. By this date every local authority and council-controlled organisation that operates a drinking water supply will need to be authorised, or have its drinking water supply operated by an authorised supplier[2].

It has also been signalled and agreed that the authorisation provisions of the Water Services Act will extend to individuals involved in work related to drinking water supplies and wastewater networks, including maintenance, repairs, or renewals.

This extended timeframe for implementation of an authorisation framework also provides the opportunity to plan for required changes across water services qualifications and standards, improve confidence in the qualifications and standards, and make meaningful progress on equipping the workforce through training and skills development.

[1] Government is amending the Water Services Act 2021 which will see Taumata Arowai, the Water Services Regulator become the 'Water Services Authority – Taumata Arowai', Fact Sheet: Drinking water quality regulation, Local Water Done Well, August 2024. Issued by Te Tari Taiwhenua (*Internal Affairs*).

[2] *Extending the scope and transitional timeframes for an 'authorisation' framework* - clauses 239-247 (pp 31-32) and *Authorisations* amendments agreed - clauses 80-81 (p52), Proactive release of Local Water Done Well stage 3 - further decisions (8 August 2024), Paper-3-Local-Water-Done-Well-stage-3-further-decisions-redacted.pdf (dia.govt.nz)

Key themes

Stage 1 of the review sought feedback on the current water services qualifications and standards to identify what is working, what is not, and what is missing.

Responses were organised into six themes:

1. The need for future fit, flexible, and adaptive educational products.
2. Broader coverage of the water services environment.
3. Qualification parity with other professions and international jurisdictions, and workforce sustainability.
4. Enabling other qualified practitioners to work on the water system.
5. Investment into pathways that build community capacity.
6. Fostering iwi/Māori relationships on water management.

1.

The need for future fit, flexible and adaptive educational products

The water services industry faces a significant challenge to develop and sustain a workforce that will meet current and anticipated need.

Feedback indicates that this challenge is further compounded by:

- → qualifications and the qualification suite not being fit for purpose
- → unit standard skill gaps and not all standards are fit for purpose
- → lack of flexible and accessible learning options, delivered at the right time in the right places, and in smaller packages
- → lack of quality and available work-based learning resources
- → lack of provider options.

What we heard

Qualifications and standards are not fit for purpose and do not fulfil the water services sector's needs.

- The small-scale system certificate needs to better bridge a range of communities, owners and operators that are not council owned, suppliers to the sector, and other trades who are involved in work related to drinking water supplies and wastewater networks.
- A Level 3 entry pathway is also needed to attract learners into the industry and provide a clear development pathway for water services operated by a local authority or council-controlled organisation.
- Future credentials need to be flexible enough to meet a range of operating environments, regional differences and communities but still have national consistency.

- The need for a formal qualification and a flexible pathway to achieve the 'multi-stage operation' was highly recommended.

- The idea of having different grades or levels within qualifications, such as wastewater treatment Levels 1, 2 and 3 based on the complexity of plant, was also considered beneficial.

- It was also noted that in reviewing the suite of water qualifications it may impact on other closely aligned qualifications such as the New Zealand Certificate in Infrastructure Works (Pipeline Construction and Maintenance) (Level 4) with strands in Drinking-Water, Stormwater and Wastewater, and Trenchless Technologies [Ref: 3858] and the New Zealand Certificate in Infrastructure Works Pipe Installation (Level 4) [Ref: 4441]. These reviews will take place at a later date alongside the infrastructure suite.

Skill gaps exist within the current suite of standards and not all standards are fit for purpose.

- Not all standards are fit for purpose with some currently unworkable – meaning that they do not reflect industry practice and urgently require review. Two examples include unit standards **29996 Demonstrate knowledge of and apply principles of water safety planning for a small drinking-water system**, and **29965 Demonstrate knowledge of small drinking-water systems.**

- Participants identified core skills and knowledge gaps, such as backflow prevention and need for trade waste standards.

- Participants are also waiting for Taumata Arowai to set out core minimum skills and competencies for authorisation.

Flexible learning at the right time, in smaller packages is needed.

- Currently there are no 'off-the-shelf' small learning packages to build knowledge, e.g. when new operating processes come on-line.

- Small community operators need a collective set of skills and competencies that cross qualifications, e.g. water supply and reticulation systems.

- Modular learning and nationwide consistency are also needed to support those that move to different workplaces.

There are opportunities to improve the quality and availability of work-based learning

Although Stage 1 consultations were not focussed on delivery or training, participants raised several issues that need consideration:

- Training needs to be a lot more flexible and adaptable to different environments and delivered when learning is needed.
- Access to training is being impacted by too few training providers.
- Concerns about quality of assessment materials.
- Concerns about knowledge gaps in learning resources.
- The need for more innovative models of work-integrated learning.
- The need for short, intense course, block teaching on technical issues with creative problem solving.

Recommended action

Action 1 – Waihanga Ara Rau to work with the water services sector to undertake 'discovery workshops' to develop a comprehensive forward-thinking, approved framework for the water services sector.

See also: Action 2, Action 4, Action 6

2.

Broader coverage of the water services environment

The scope of the water services environment has significantly broadened. This expansion has reshaped the definition of who qualifies as a water operator or supplier.

Planned amendments to authorisation in subpart 10 of Part 2 of the Water Services Act 2021 will further extend the definition to include individuals involved in work related to performing maintenance, repairs, or renewals on drinking water supplies or wastewater networks.

This has implications for the credentials suite supporting the sector. The current suite is primarily designed for managing and maintaining council-controlled water services supply and infrastructure.

What we heard

- Industry wants Taumata Arowai to define a ‘core’ minimum skill set for working on water services supply and infrastructure.
- Industry want clarity on what is needed, by way of credentials, for local and nationally mandated operating and maintenance services contracts, e.g. rural schools when contracting in such services.

Recommended action

Action 2 - Waihanga Ara Rau to work with the water services sector to define ‘core’ minimum mandatory skill set for different water services environments.

See also: Action 1, Action 4

3.

Qualification parity with other professions and international jurisdictions, and workforce sustainability

Industry has called for water services practitioners to meet both skill competence and time served. A recurring question was raised:

> "Why can water services practitioners achieve rapid qualifications, when working on critical water infrastructure?

Comparisons with plumbers and electricians were frequently made:

> "[Plumbers and electricians] are required to be registered and licenced and need to meet stringent practice standards. Why is this not the same for water services practitioners?"

International jurisdictions were often referenced in terms of their approach to qualifications and time-on-tools, highlighting a desire for parity of the New Zealand qualifications with other jurisdictions. This parity was viewed as essential for enabling labour mobility and better recognising offshore skills for working on New Zealand water infrastructure (with appropriate local compliance training).

Parity could also address workforce sustainability issues by attracting offshore skills, and provide a graduated industry structure rather than the expectation that all workers need to hold a Level 4 qualification.

What we heard

- There is the Water New Zealand Competency Framework but there are also many other competency frameworks and standard operating procedures across the motu.

  > "We need to be working to one framework so that training can be nationally consistent. The Water New Zealand competency framework is unworkable".

- There is a concern about the disparity in training duration, with plumbers requiring four years "while some water treatment qualifications can be achieved in eight months."

- There is also a concern that current training and qualification processes do not require adequate practical experience, unlike the more extensive apprenticeship models used in

other trades, such as plumbing and electrical, and in countries like Australia, Canada, and the United States.

- It was also noted that:

  > "[un]like plumbers and electricians who have clear registration and ongoing competency requirements, the water industry lacks similar transparency and regulation."

- Local authorities and council-controlled organisations are expecting that:

  > "future authorisation will require water specialists to step through a structured development pathway enabling them to eventually be qualified to operate a plant, as happens in other jurisdictions".

- Every person 'should' hold a Level 4 qualification is seen as "neither desirable nor sustainable for business", instead a pathway and a range of credentials is needed.

Recommended action

Action 3 - Waihanga Ara Rau to work with the water services sector to establish the requirements that would support cross jurisdictional and practitioners' parity and workforce sustainability.

See also: Action 2, Action 4

4.

Enabling other qualified practitioners to work on the water system

Current legislation and regulations set out the requirements and demarcation of responsibility at the 'boundary' – for example between plumbers and those working on the water systems. Upcoming amendments to the Water Services Act 2021 will encompass an even broader range, of practitioners working on the water system.

Communities are also impacted by the demarcation of responsibility. For example, most communities have access to a local plumber(s) who cannot work upstream of the water toby due to regulations.

What we heard

- As most communities have a local plumber:

  > "[C]an there not be a limited plumbing licence to allow skilled plumbers to become qualified for specific tasks as needed to support and address shortage of qualified workers?"

- Credentialed packages are also needed to allow for skills to be validated for water specialists, e.g:

  > "advis[ing] on household point of entry drinkable water treatment systems and water filter changes".

- Collaboration with industry bodies, such as Master Plumbers and the Plumbing, Gasfitting and Drainlaying Board, is seen as essential to address training, qualification, and practice issues.

Recommended action

Action 4 - Waihanga Ara Rau to work with the water services sector to explore the skills, knowledge and competencies that support enabling other qualified practitioners such as plumbers to work on the water system. See also: Action 1, Action 2

5.

Investment into pathways that build community capacity

Communities outside urban water supplies face several challenges, including low levels of water literacy and a reliance on qualified but aging personnel, many of whom are volunteers and in limited supply.

Building capability across communities would support community participation in their own water supply and treatment operations, compliance requirements, and decision-making. Without this knowledge communities are also vulnerable to the market practice of upselling.

What we heard

- Communities are reliant on the knowledge held by 'outside' experts, or someone who has water supply experience but is likely to be a volunteer. In other communities there is no one, and the community "[doesn't] know if what they are telling us is what we really need" and "we need the community and leaders to participate in their water supply."

- The qualifications need to be inclusive, accessible and meet the needs of Māori. For iwi, the journey begins with 'water as a taonga'. A reframing of knowledge to encapsulate mātauranga Māori (knowledge informed by Māori worldviews) and kaitiakitanga (guardianship) is wanted "as it is more than treatment".

- Catchment management was also highlighted:

  > "We need our rangatahi, our children in school to know about water, where it comes from, and protecting the mauri of the water".

- Rangitahi who are already doing training/apprenticeships (for example drainlayers, plumbers) should be able to "get additional qualifications to work on water."

- "Local and connected training providers to support our communities" are also missing.

- Finding the training funds and people to support training and mentoring both from inside and outside the community will be the challenge.

Recommended action

Action 5 - Waihanga Ara Rau to work with the sector to develop advice to TEC about opportunities to support delivery of education provision into communities that facilitates development of community capacity in drinking water, wastewater, and stormwater.

6.

Fostering iwi/Māori relationships

The Government is repealing the requirement in the Water Services Act 2021 to give effect to Te Mana o te Wai, as Te Mana o te Wai is already a consideration for local authorities and council-controlled organisations under the National Policy Statement for Freshwater Management 2020 (NPS-FM).

Feedback from local authorities, council-controlled organisations, and owners and operators of water into communities and rural schools is that iwi/Māori relationships on water management remain important.

Currently there are no formal qualifications or standards on the NZQCF that address the cultural significance and importance of wai within the water services sector.

What we heard

- Strong support was expressed for graduates to have a deeper understanding of the Māori worldview on mana whenua, including land and water.
- Te Mana o te Wai is still recognised as a skill gap for learners:

> "We want them to understand and know how to give effect to Te Mana o te Wai."

Recommended action

Action 6 - Work with the water services sector to develop skill standards that build knowledge and support engagement with te ao Māori in relation to wai.

See also: Action 1

Appendix 1: Feedback on the qualifications

Feedback was sought on seven water services qualifications:

1	New Zealand Certificate in Water Treatment (Small Scale Systems) (Level 3) [Ref: 2240]
2	New Zealand Certificate in Drinking-water Treatment (Level 4) [Ref: 4138]
3	New Zealand Diploma in Drinking-water Treatment (Level 5) [Ref: 4139]
4	New Zealand Certificate in Wastewater Treatment (Level 4) [Ref: 4142]
5	New Zealand Diploma in Wastewater Treatment (Level 5) [Ref: 4143]
6	New Zealand Certificate in On-site Wastewater Management Systems Design (Level 4) [Ref: 4216]
7	New Zealand Certificate in Drinking-water Supply (Assessment) (Level 5) [Ref: 4223]

There are currently no training programmes available for the following qualifications:

New Zealand Certificate in Water Treatment (Small Scale Systems) (Level 3) [Ref: 2240]
New Zealand Certificate in Drinking-water Supply (Assessment) (Level 5) [Ref: 4223]

Two qualifications offer both a core and a multi-stage option:

New Zealand Certificate in Drinking-water Treatment (Level 4) [Ref: 4138]
New Zealand Certificate in Wastewater Treatment (Level 4) [Ref: 4142]

1. New Zealand Certificate in Water Treatment (Small Scale Systems) (Level 3) [Ref: 2240]

The skills and knowledge in the approved programme leading to this qualification will not meet the required needs of the water services sector. It does not bridge the range of operating environments, operators, and communities that now work with water services systems.

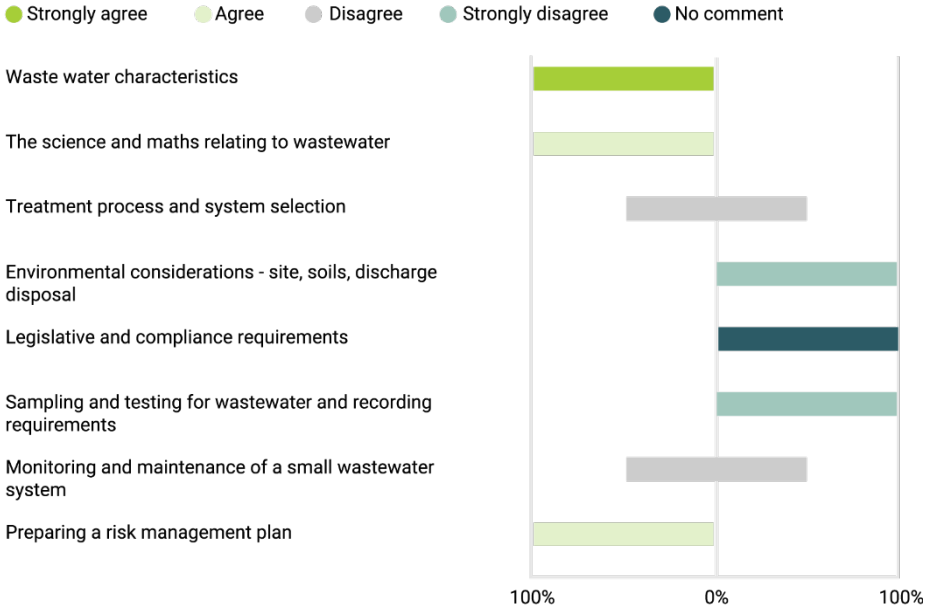
Qualification

- Survey participants strongly agreed that the qualification should provide qualified individuals who are able to ensure that small scale drinking-water or wastewater systems operate in compliance with regulatory requirements and other associated industry standards.
- Many participants did not agree with the following graduate profile statement as most operators will be required to work without supervision: "Operators will work under limited supervision [and may be in remote or self-contained locations]".
- A suggestion was that there should be smaller qualifications, perhaps one focused on "commissioning and installation" and another on "operating and maintaining".

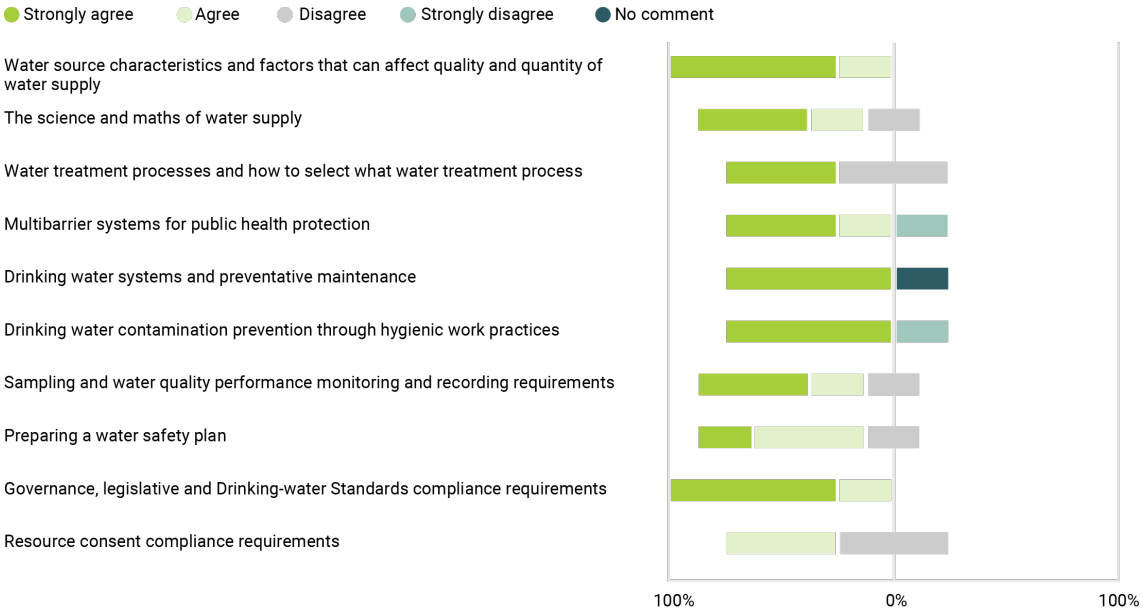
Unit standards

- Standards are not fit for purpose. Unit standards **29996 Demonstrate knowledge of and apply principles of water safety planning for a small drinking-water system**, and **29965 Demonstrate knowledge of small drinking-water systems** are "currently unworkable and do not reflect industry practice and urgently require review."

- The skills and knowledge needed to operate a small-scale drinking water supply include:



- The skills and knowledge needed to operate a small-scale wastewater treatment supply include:



2. New Zealand Certificate in Drinking-water Treatment (Level 4) [Ref: 4138]

Overall, this qualification was considered important to local government owned water operations. However, there were three key shortfalls identified:

1. The programme structure is not flexible enough for the multi-stage option for that qualification. Learners need flexible learning at the right time, as and when new operating processes comes on-line at a plant.
2. The dual structure of the qualification creates market confusion when distinguishing single-stage from multi-stage.
3. Greater national consistency is required through more face-to-face learning time.

Qualification

- The purpose of the qualification - *to provide the water treatment industry with individuals who have the skills and knowledge to be responsible for the day-to-day operation of a drinking-water treatment plant* - was supported.
- The qualification was expected to be achieved by all trainees that are required to take on the responsibilities of day-to-day plant operations, **but not as plant supervisors.**
- The creation of a formal qualification and a flexible pathway to achieve the 'multi-stage operation' is recommended.
- Advances in technology have increased knowledge and academic requirements for operating larger water supplies.

Unit standards

- Standards are not fit for purpose: "They need to be reviewed to match legislation to current requirements."
- Content needs more focus on why things are done not just how, which would promote better understanding of systems.

Delivery

- Access is needed to multi-stage processes, when learners do not have access to the process. The multi-stage option of this qualification requires a number of credits to be achieved to award the qualification.

- There are difficulties in provisioning training and assessment on top of the requirement for learners to be 'on-block' for smaller, more remote communities.

Other comments

- For 'multi-stage operations' a period of ón-job/time in plant' is required to operate a plant and that during this time support and supervision is needed.

- Level 4 course is good for someone new to industry but does not provide further upskilling for those who had been in the industry for 2-3 years.

3. New Zealand Diploma in Drinking-water Treatment (Level 5) [Ref: 4139]

This qualification received limited feedback.

4. New Zealand Certificate in Wastewater Treatment (Level 4) [Ref: 4142]

As with the New Zealand Certificate in Drinking Water Treatment, this qualification was considered important to local government owned water operations. Again, there were two significant shortfalls:

1. The programme structure was not flexible enough for the multi-stage option for that qualification. Learners need accessible and flexible learning at the right time, as and when new operating processes come on-line at a plant.

2. The dual structure of the qualification creates market confusion when distinguishing single-stage from multi-stage.

Qualification

- Overall the purpose of the qualification - *to provide the wastewater treatment industry with individuals who have the skills and knowledge to be responsible for the day-to-day operation of a wastewater treatment plant* - was supported.

- For Graduate Profile Outcome One, 'Implement, monitor and communicate health and safety requirements for a wastewater treatment plant', it was noted that this has now become a specialised role. But wastewater operators need to provide input.

- For Graduate Profile Outcome Four, 'Monitor wastewater treatment plant operation and interpret compliance and operational data to meet organisational and regulatory requirements', it was noted that sampling and testing to meet regulatory requirements has again become a specialised role. Wastewater operators still need to provide input.

- The qualification "does not produce qualified supervisors or senior operators". The purpose of this qualification is "to ensure the operator knows the processes of the plant and to know the basics on how to run a waste water plant."

- Comments on improvement included:

  "[T]he whole certificate needs a overhaul from top to bottom, that also includes more assessors, moderators and teachers."

  "Definitely hours based roles for competency, designed for stages of plant - preliminary treatment hours, secondary treatment, disinfection where applicable, dewatering."

Unit standards

- Changes in regulatory requirements are anticipated and this likely will impact existing unit standards.

- Key areas of skill are missing: "They need to be reviewed."

- Standards are not fit for purpose: "All unit standards need quality control and assurance."

Delivery

- The multi-stage option of this qualification requires a number of credits to be achieved to award the qualification. Access is needed to multi-stage processes when learners do not have access to the process.

- For 'multi-stage operations' a period of 'on-job/time in plant' is required for skills to be designed and validated for stages of plant.

Other comments

- For 'multi-stage operations' a period of 'on-job/time in plant' is required to operate a plant and that during this time support and supervision is needed.
- Level 4 course is good for someone new to industry but does not provide further upskilling for those who had been in the industry for 2-3 years.

5. New Zealand Diploma in Wastewater Treatment (Level 5) [Ref: 4143]

This qualification received limited feedback.

6. New Zealand Certificate in On-site Wastewater Management Systems Design (Level 4) [Ref: 4216]

This qualification received limited feedback.

7. New Zealand Certificate in Drinking-water Supply (Assessment) (Level 5) [Ref: 4223]

With the establishment of Taumata Arowai[3], this qualification is reported as no longer needed.

[3] Government is amending the Water Services Act 2021 which will see Taumata Arowai, the Water Services Regulator become the 'Water Services Authority – Taumata Arowai', Fact Sheet: Drinking water quality regulation, Local Water Done Well, August 2024. Issued by Te Tari Taiwhenua (*Internal Affairs*).