

KO WAI TĀTAU

WE ARE WATER

WEBINAR 1:

Three Waters - Industry Scan

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assurity⁺

THREE WATERS WORKFORCE
DEVELOPMENT STRATEGY

SECTION

ONE

INTRODUCTION


THREE WATERS WORKFORCE
DEVELOPMENT STRATEGY —

KO WAI TĀTAU
WE ARE WATER

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How might we uncover the potential of the Three Waters industry to make it a 'Plan A' career path?

PROJECT PHASES

Three Waters Workforce Development

Baseline research

Phase 1 (complete)

1. **Iwi engagement** – Overview of te ao Māori contexts of the industry and establishment of a draft vision that fully encompasses Māori perspectives.
2. **Industry scan** – Understand the challenges faced under the current 3W setup and use a workforce development lens to identify gaps on the road to regulation and reform.
3. **Small supplier engagement** – Understand how to meaningfully engage with an estimated 75,000 small-scale suppliers to incorporate their perspectives.
4. **Comms plan** – Establish a communication plan: who we want to engage with and how.

Targeted research and consolidation

Phase 2 (complete)

- **Qualitative research** – 44 in-depth interviews with a diverse range of stakeholders from 'Gen Z' students to CEOs, including iwi/hapu engagement.
- **Collective refinement** – Collaboration with key project stakeholders to refine results.
- **Report** – Preparation of the Ko Wai Tātau / We are Water Workforce Development Strategy Report and website.



Team up with ESI to activate solutions

Phase 3 (in progress)

- **Establishment of iwi and hapu reference group** – Establishment of dedicated iwi- and hapu- led workstream on workforce development.
- **Discovery** – Workshops with industry to agree on target outcomes, tackle uncertainties, and review any critical information.
- **Strategy development** – Action and test solutions for improved industry visibility and pathways

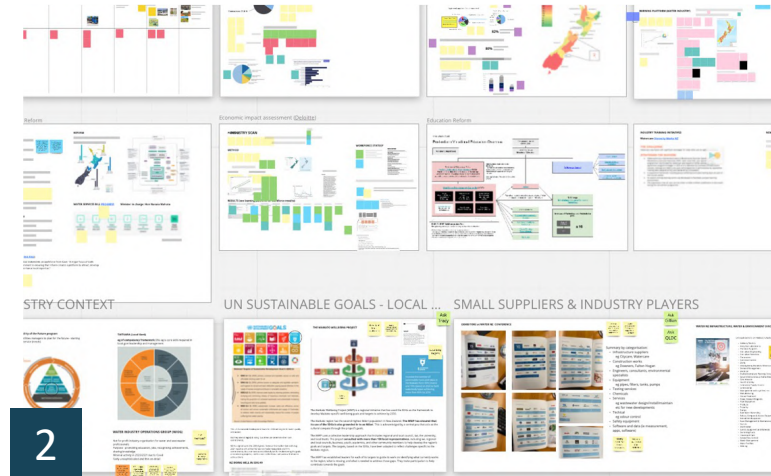
HOW WE BUILT THIS INDUSTRY SCAN

Three step process



Identify sources

Discovery workshop with industry stakeholders to identify project outcomes and build a comprehensive document list.



Scan and collect data

Scan identified documents with an industry and workforce lens, collect and cluster data.



Identify topics and themes

Internal workshops to identify and cluster topics and key themes.

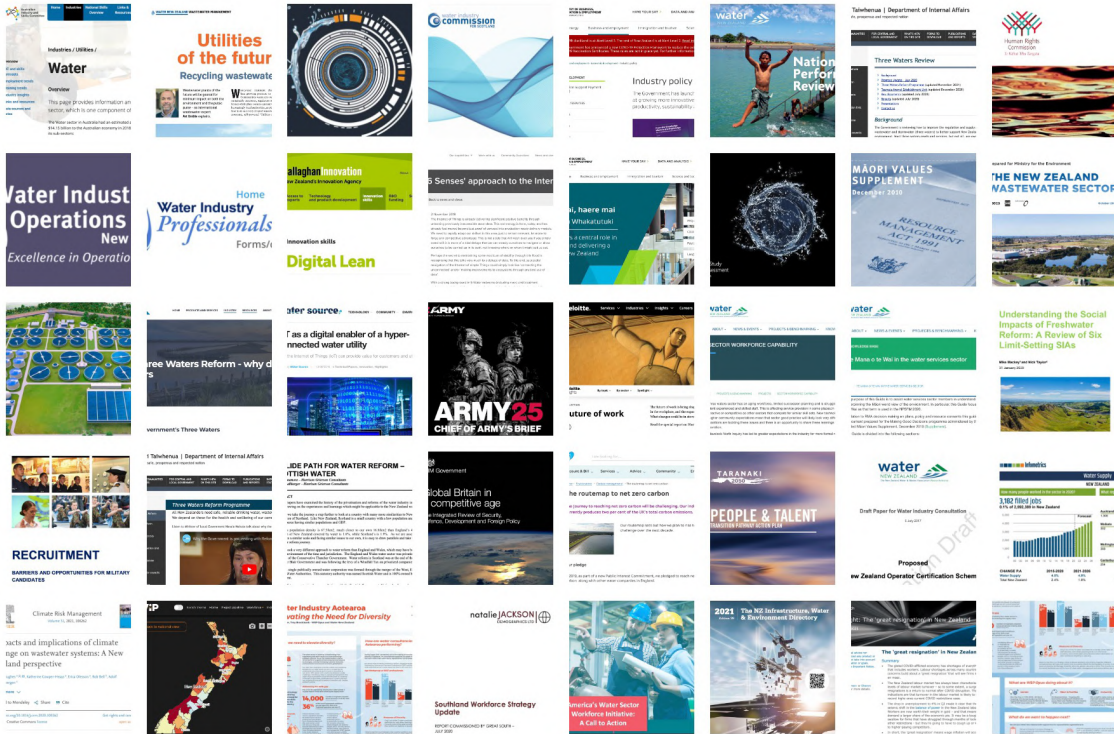
HOW WE BUILT THIS INDUSTRY SCAN

We looked at over 48 documents and conducted empathy interviews with industry leaders.

38+ New Zealand Documents

10+ International documents

3 Interviews with industry leaders

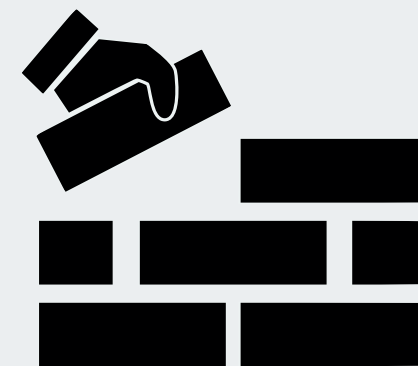


HOW THE INDUSTRY SCAN SUPPORTED OUR APPROACH

Rather than offering solutions, the industry scan forms a **baseline of foundational knowledge** to begin the process of forming the strategies that will retain and build the Three Waters workforce.

It presents a snapshot of the current state of the water industry amid reform, taken with a workforce lens.

The accuracy of this scan was shaped by the data sources, and the voices of industry contributors.



SECTION

TWO

SUMMARY OF FINDINGS

THREE WATERS WORKFORCE
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A PERFECT STORM IS BREWING

The water sector is facing infrastructure deficit, skills deficit and labour shortages. This is against a backdrop of growing demand, social pressures and increasing regulation.

Data shows that the Water Sector is falling short of service delivery and environmental expectations.

Effective reform will only be possible if we address significant workforce challenges.

OVERVIEW OF AN INDUSTRY AND ITS WORKFORCE CHALLENGES

The water sector is falling short of service delivery and environmental expectations.

Effective reform will only be possible if significant workforce challenges are addressed.



Inconsistent performance

Parts of New Zealand do not have access to safe drinking water or compliant wastewater services.



Overextension

In its current state the water industry is straining to maintain its existing infrastructure, and to meet the needs of tomorrow.



Fragmentation

Our most crucial services are currently planned, managed and delivered by 67 councils, and a long tail of unregulated small suppliers.



Stretched workforce

From employers looking to build capability, to employees working beyond their skillsets, the industry is facing increasing workforce pressure.

Industry Challenges

Inconsistent Performance

Parts of New Zealand do not have access to safe drinking water or compliant wastewater services.

“There is big underinvestment in local government. Not only in maintaining or growing their assets, but under-investment is also in staff.”

Policy leader

INCONSISTENT PERFORMANCE

Parts of New Zealand do not have access to safe drinking water or compliant wastewater services.

Critical underinvestment

Local authorities are struggling to meet water costs.

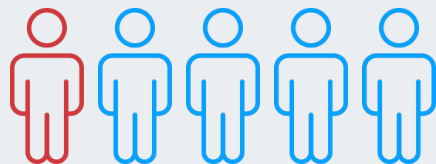
64%

64% of councils don't have water revenues to meet the full costs of running water services and assets.

Source: Minister of Local Government

Health impact

Easy access to clean drinking water is a fundamental human right.



This right is not adequately met for one in five New Zealanders.

Source: Department of Internal Affairs

Social impact

Remote populations and Māori are at much greater risk from substandard water services.

20%

Nationally, water charges have increased 20% in the last five years, disproportionately affecting low earners.

Source: Water NZ

Environmental impact

3,385 wastewater overflows were reported in 2020.

9 overflows/day

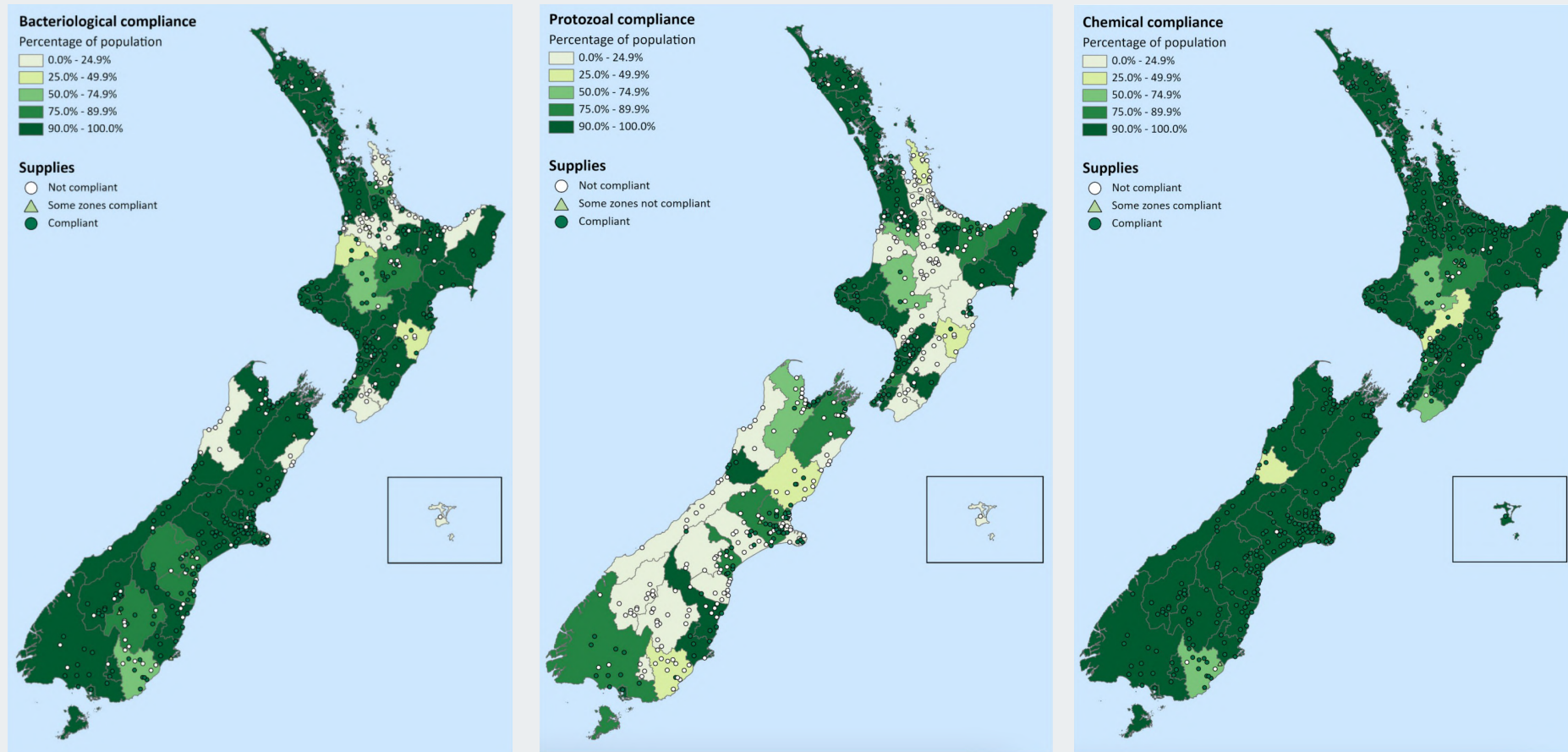
The true size of the problem, and the full extent of resultant environmental impacts are unknown.

Source: Water NZ

INCONSISTENT PERFORMANCE

HEALTH IMPACT

Unsafe drinking water is primarily in remote, rural regions



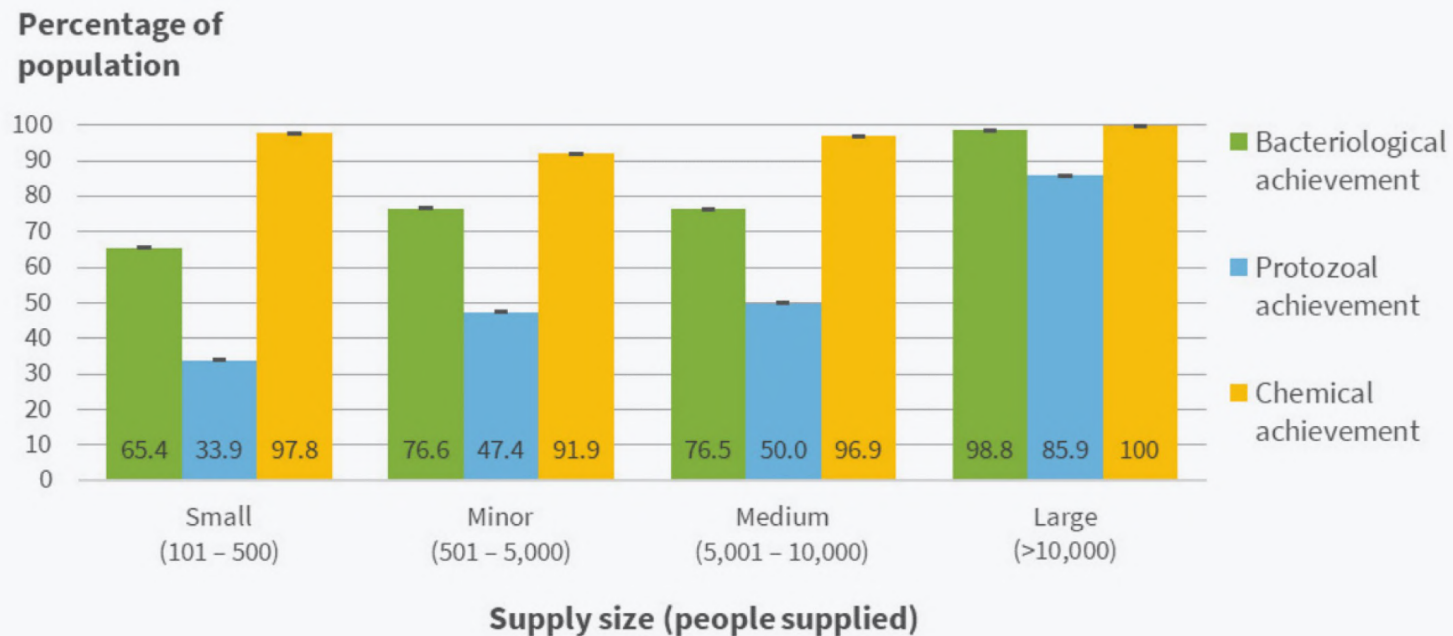
Source: Ministry of Health

INCONSISTENT PERFORMANCE

HEALTH IMPACT

People served by smaller suppliers are less likely to have access to safe drinking water.

Percentage of population with access to safe drinking water during the 2019/20 reporting period, by supply size.



Note: 95% confidence intervals have been presented as error bars.

Source: Ministry of Health 2021

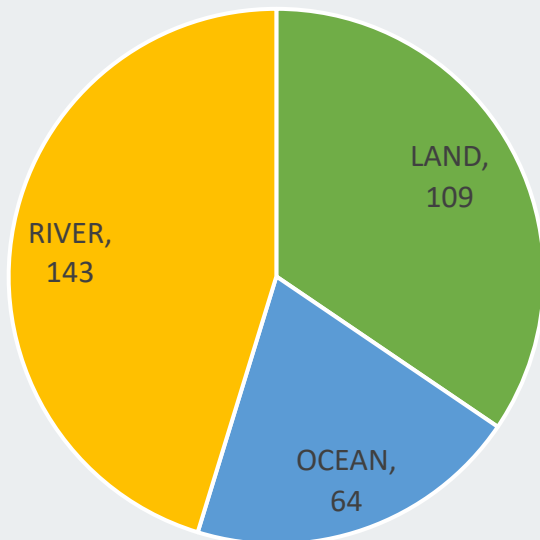
Generally, smaller supplies have lower levels of bacteriological and protozoal achievement.

INCONSISTENT PERFORMANCE

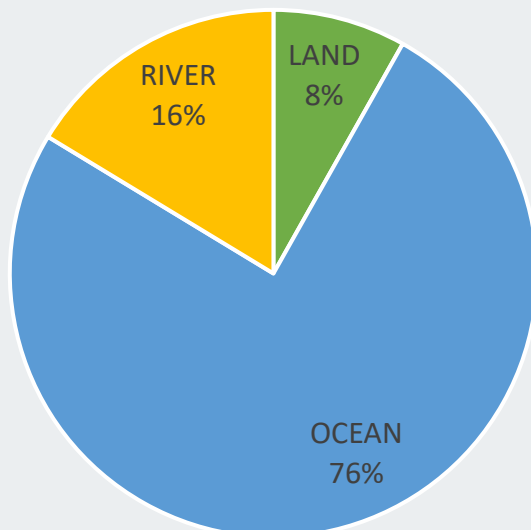
ENVIRONMENTAL IMPACT

Where our wastewater goes

Number of WWTPs by discharge environment



WWTP serviced population by discharge environment



Used water treated by wastewater treatment plants (WWTPs) in New Zealand is discharged into land, rivers and sea.

Most commonly, WWTPs outflow effluent into rivers – particularly smaller WWTPs.

When taking a view of the overall serviced population, however, we can see that the vast majority of effluent is discharged onto the ocean by larger WWTPs.

Source: MfE, StatsNZ

Industry Challenges

Overextension

In its current state the water industry as a whole is straining to maintain its existing infrastructure, and to meet the needs of tomorrow.

“We need to change the way we invest and provide water services so that every community across the whole country can benefit. The status quo is no longer an option.”

Minister for Local Government

OVEREXTENSION

In its current state the water industry is straining to maintain its existing infrastructure, and to meet the needs of tomorrow.

Ageing & inadequate infrastructure

Water services in New Zealand face a significant infrastructure deficit due to decades of underinvestment.

25%

Almost a quarter of wastewater plants are not consented, more than half wastewater plants will need to be re-consented in the next ten years.

Industry under pressure

Societal and regulatory pressure to improve water quality and environmental outcomes is building, even as usage increases.

12%

National demand for drinking water increased 12% in the four years to 2020.

Source: Water NZ

Growing industry

The water industry is poised to enter an unprecedented period of growth as it is brought in line with regulations.

\$14M

\$120b to \$185b capex investment needed over the next 30 years. That's around \$14M capex every day of the year.

Source: DIA

Variable technology uptake

Technology uptake by sector organisations is variable, with some having full digital supervisory control and data acquisition, and others relying on full manual operation.

INCONSISTENT PERFORMANCE

WHAT WE HEARD

The estimated GDP impact is large because water is an input to every business and household - hence the reform impacts every corner of the economy.

Source: Deloitte Three Waters Impact Assessment

“Underinvestment, including deferred maintenance and renewals expenditure, has left a legacy of impending costs and poor services for future generations.”

Minister for Local Government

“Society's expectations of water quality both in terms of drinking water, and in what we discharge has shifted dramatically.”

Policy leader

Global demand for accessible water will exceed supply by more than 40 percent in 2030.

Source: UN 2019

The number of service providers with stormwater quality management plans increased by 43% between 2017 and 2020.

Source: UN 2019

Industry Challenges Fragmentation

Our most crucial services are currently planned, managed and delivered by 67 councils, and a long tail of unregulated small suppliers.

“Organisation and stewardship is missing. That's what the reform is trying to achieve.”

Policy leader

FRAGMENTATION

Our most crucial services are currently planned, managed and delivered by 67 councils, and a long tail of unregulated small suppliers.

Incomplete workforce data

There is no reliable and up-to-date single source of water workforce data on education, gender, age, ethnicity, locations and roles.

70%

Seven out of ten water consultancies do not collect data on staff ethnicity.

Source: Water NZ

Inconsistent water delivery services

There is a wide variation in water service scale, capability, quality and charges throughout the country, with approximately 720 medium to large suppliers providing for 80% of the population.

720 → 80%

medium to large suppliers

Of the population

Source: DIA

Unknown performance of small suppliers

Assessing and bringing small suppliers to compliance will bring additional complexity to an already fragmented sector.

1.3k → 75k

Registered suppliers

Unregistered suppliers (est.)

Source: ESR / Taumata Arowai

Lack of large-scale strategic and coordinated planning

There is a need for shared vision and approach on how to prioritise resources, and how giving effect to Te Mana o te Wai will influence industry best practices.

Broken pathways and missing qualifications

Skills and experience standardisation across the sector is needed to lift service quality and streamline pathways into and across the sector.

FRAGMENTATION

WHAT WE HEARD

Te Mana o te Wai is not currently universally upheld or applied as a foundational guiding principle for sustainable water management.

Source: Taumata Arowai

“The reform is about introducing a new way of working in a new model of co-governance with Māori. Industry will be led and operated in a fundamentally different way, a way that is good for the workforce and good for the environment. Kaitiakitanga means each iwi will restore their own land – it’s sacred to them.”

Iwi engagement industry participant

New tangata whenua roles will be needed to facilitate representation of approximately

72

iwi and their associated hapū and whānau.

Industry Challenges Stretched Workforce

From employers looking to build capability, to employees working beyond their skillsets, the industry is facing increasing workforce pressure.

“Across the board we need more treatment plant operators, general maintenance staff, project managers, asset managers, compliance staff - everywhere we need for more people... Automation and apps are coming in but this also causes more challenges and headaches”

Small council water asset manager

STRETCHED WORKFORCE

From employers looking to build capability, to employees working beyond their skillsets, the industry is facing increasing workforce pressure.

Urgent need to expand the skilled workforce

Transforming the water sector will be one of the greatest workforce challenges of our time.

50%

Under reform, labour and related direct costs represent an estimated 50% of total costs of capital works.

Source: DIA

Competitive labour market

Dwindling supply, stiff competition and no option to import labour means maintaining a water workforce is already a challenge.

46%

In the year to September 2021, overall online vacancies for technicians and tradespeople across all industries increased 46%.

Source: MBIE

Increasing demands, diminishing skills

As regulatory pressures build, a skills deficit will grow in the gap between workforce capacity and sector compliance.

59%

59% of water sector employees have no qualifications listed with their employer.

Source: DIA

Skills for the future

Technology uptake by sector organisations is variable, with some having full digital supervisory control and data acquisition, and others relying on full manual operation.

56

The average age for a wastewater worker is around 56.

Source: WIOG

STRETCHED WORKFORCE

INCREASING DEMANDS

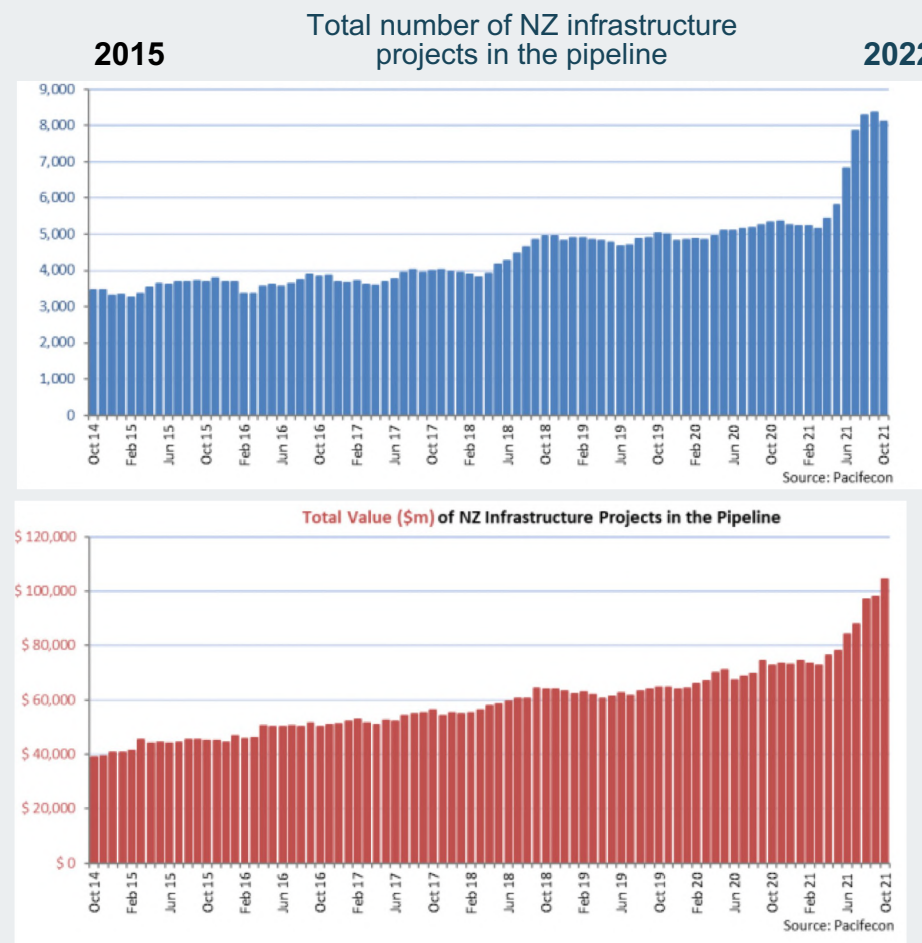
NZ's infrastructure pipeline is already seeing massive growth

At the end of October 2021, 8,117 infrastructure projects were at planned stages in New Zealand (water included), with a combined value of \$104b.

This is an increase in 43% in planned project value since 2020.

The number of projects rose massively in June-July when many central and local government projects were announced, with a commensurate growth in value.

(Source: Pacifecon Market Watch, Oct. 2021)

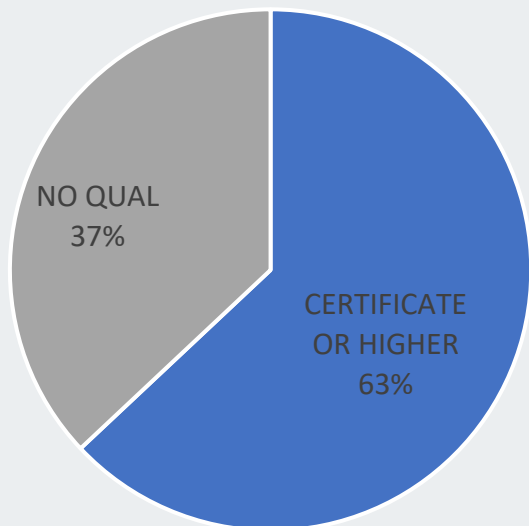


STRETCHED WORKFORCE

DIMINISHING SKILLS

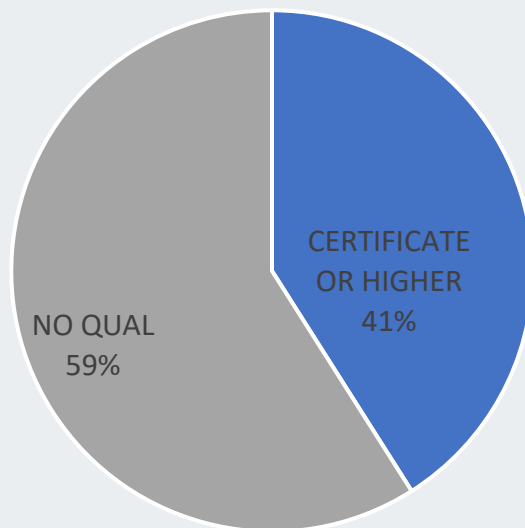
Reduction in qualified workers

Highest level of qualification
of water supply workers **2013**



Source: Connexis

Highest level of qualification of
water sector employees **2020**



Source: WaterNZ

“The ratio of the number of qualified people doing the jobs versus labourers that have been pulled in to help has deteriorated over time.”

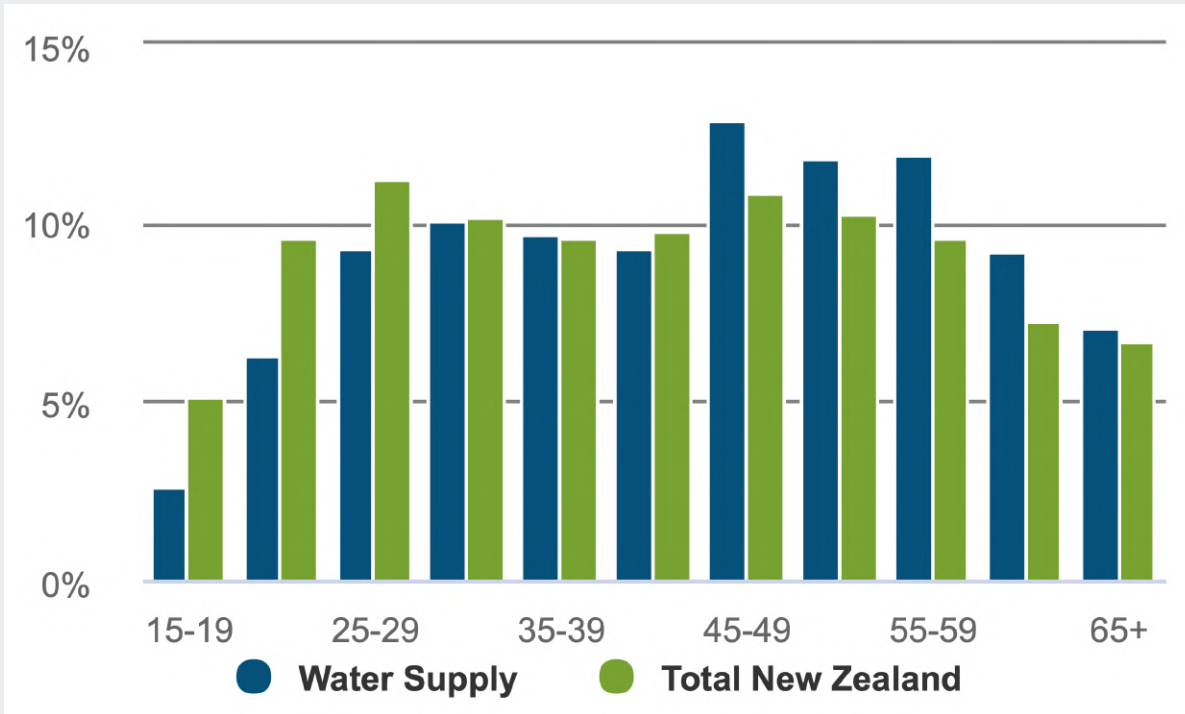
Policy leader

STRETCHED WORKFORCE

DIMINISHING SKILLS

Ageing workforce

Age profile of water supply workers in 2018



Source: Infometrics/Connexis

“People with experience should be subject matter experts but also provide mentorship.”

Network manager

KEY TAKEOUTS

THREE WATERS WORKFORCE
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KEY TAKEOUTS

1. There is significant national variance in the quality of water services.

Fragmented industry

Water is managed by 67 councils, and a long tail of an estimated 75,000 small suppliers.

Variable standards

A lack of universally adopted definitions of best practice, and no training standards for specialised roles, is contributing to inconsistent service delivery.

Smaller suppliers lagging

The quality of water services is related to scale, with smaller providers often lacking the specialist skills needed to reach high quality results.

Regions lagging

The regions are proportionally over-represented in terms of poor service outcomes, and under-served by distribution of water workers.

2. Water services are under increasing pressure to perform.

Increasing demand

In line with global trends, demand for clean and safe drinking water is increasing.

Societal pressures

Societal and regulatory pressure to improve water quality and environmental outcomes is building.

Knowledge shortfall

Best practices are changing, and regulation will require providers to build knowledge of the latest technologies.

Under-prepared workforce

Major capital projects are coming on line over the coming decades, but the industry workforce is inadequately prepared to build and operate this new infrastructure.

3. The need to build the Three Waters workforce is urgent, and the challenges are significant.

Major workforce expansion

Water service transformation will require thousands of new workers – to both complete capital projects, and to operate the reformed industry.

Competitive labour market

Recruitment is a challenge, with record low unemployment and immigration restrictions, along with increasing competition from the construction and wider infrastructure sectors.

Uncertain pathways

Journeys into the industry and competency are unclear, and further career progression is stifled through a lack of standard, transferable qualifications for specialist roles.

Diminishing skills

The industry is ageing with limited succession planning, and is struggling to maintain the workforce required to run the current setup. There is an increasing skills deficit, with almost 60% of water sector workers unqualified.



Download the full
report and be a part
of the conversation:
www.wearewater.nz

NGA

MIHI

MAIOHA

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