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Technological Change and the Future of Work Inquiry  
New Zealand Productivity Commission  
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## Submission to Productivity Commission Issues Paper: Technological Change and the Future of Work Inquiry

### Introduction

Water New Zealand welcomes the Commission's Inquiry.

Water New Zealand is a not-for profit organisation that promotes and represents water management professionals and organisations. It is the country's largest water industry body, providing leadership in the water sector through advocacy, collaboration and professional development. Members are drawn from all areas of the water management industry including regional councils and territorial authorities, consultants, suppliers, government agencies and scientists.

### Challenges

The water industry faces significant future challenges due to heightened community expectations for water quality and the need to replace ageing infrastructure. In addition, developing resilience to natural hazards is a major and increasing challenge for councils and their communities. We have not planned our infrastructure assets to manage the current and future impacts of climate change.

Heightened expectations about water quality will continue to manifest themselves in higher standards for treatment of stormwater and wastewater discharge to the receiving freshwater and ocean environment. For example, changes required due to the National Policy Statement for Freshwater Management introduced in 2011, updated and replaced in 2014, and further amended in 2017. The greater expectations of communities are reflected in new resource consents that raise the standards required.

Through improved understanding and awareness of stormwater issues, there is likely to be increased accountability required for those "polluting", or perceived to pollute stormwater. Regulatory and compliance demands on Local Authorities will continue to increase and public and private sector organisations are likely to become increasingly aware of their social licence to operate.

The current 'three waters' review by the Department of Internal Affairs is likely to lead to the introduction of an enhanced national regulatory regime for drinking and wastewater. However, as technology plays an ever-greater role in understanding all aspects of the water cycle and water usage, it is becoming less useful to differentiate between types of water (e.g. stormwater, wastewater, potable water, groundwater, coastal).

To tackle these challenges requires both technological progress and the upskilling of the workforce to design and implement new methods of water management. It may also require some rationalisation in the structure of the water industry so that providers have sufficient scale and expertise to meet higher standards and adopt new technologies.

## Technological advances

Technological advances are taking place across the water industry, including in the materials used for pipes, in treatment processes and in the information technologies available to gather and analyse data. There is a significant variance in the uptake of new technology by councils with some leading best practice. Others rely on manual treatment methods and are not taking advantage of the benefits of technological advances and automation.

For example, technology has been developed in New Zealand for measuring raw water influent quality and determining how much coagulant is required for water and wastewater treatment plants. This system reduces chemical costs by around 18%, reduces plant downtime and delivers an improvement in final water quality. The payback on investment is typically less than two years.<sup>1</sup> For example, Wellington Water delivered \$650,000 per annum in operating costs whilst improving plant performance.<sup>2</sup> However, it requires a high level of expertise to operate and of the 60 sites utilising this system, most are overseas.

Similarly, another product developed in New Zealand has reduced the power costs by approximately 10% through shifting pumping to lower power tariff periods and maximising pump efficiency, whilst keeping reservoirs and pressures within the required parameters.<sup>3</sup> This technology has been used in Wellington and has delivered significant cost savings. However, there is little wider adoption in New Zealand even though this energy management software is used internationally.

## Workforce capability

One factor constraining the adoption of new technology is the level expertise of the council staff involved in making decisions about water treatment and management. It is essential to equip the workforce at all levels, from the managers, engineers and designers to the technicians and operators of the water system.

The three waters sector has an ageing workforce, limited succession planning and is struggling to recruit and retain enough experienced and skilled staff. In general, the sector is not as attractive or competitive as other sectors that compete for similar skill sets. This is having an impact on service provision in some places.

The Havelock North Inquiry has led to greater expectations in the industry for more formal recognition of workforce capability such as qualifications and proof of experience. However, the sector's 'body of knowledge' is not being utilised well in all areas partly because learning within the water sector is uncoordinated.

Anecdotal evidence suggests that the lack of industry training activities is adding to growing recruitment and retention concerns within the sector. Currently the number of trainees in the industry enrolled each year in programmes such as apprenticeships is less than 100, making it considerably harder to offer courses with scales of economy.

There is a shortage of skilled people across the industry currently and into the future. We know that there are a significant number of 'baby boomers' retiring, and it is not clear if these people can be replaced on the current academic numbers passing both in university and polytechnics.

A project to develop a strategy and plan of action for resolving these workforce capability challenges has been commenced by Water New Zealand. A Reference Group has been established with representatives from the Water Industry Operators Group, council three

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<sup>1</sup> <http://www.lutra.com/water-treatment-software/automated-coagulation-dosing>

<sup>2</sup> <http://www.lutra.com/knowledge-base/user-stories/wellington-water>

<sup>3</sup> <http://www.derceto.com/Products-Services/Derceto-Aquadapt/About>

waters providers, contracting companies and suppliers as well as education and training institutes.

## CONCLUSION

New technologies, tougher standards and higher community expectations mean that sector good practice is likely to look very different in the future. Some organisations are tackling these issues effectively and introducing new technology. There is an opportunity to share these learnings through greater industry collaboration.

Technological change is a significant opportunity for the water industry. We consider that the 'more tech & more jobs' scenario is most likely for our sector with increased investment providing job opportunities across an increasingly diverse range of skills. Overall, we are experiencing greater demands and higher expectations on the water system. Technology will not lead to less jobs, but different jobs to meet those challenges.

Water New Zealand welcomes this opportunity to share the insights we have gained from our work in the water industry with the Productivity Commission. Please contact me if you wish to discuss any of our comments in greater detail.

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