

## Appendix B

### Review of three waters infrastructure services



Initial key findings for discussion  
with the Minister of Local  
Government

10 November 2017

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## Three waters infrastructure underpins a number of the Government's priorities

1. A number of Government priorities are heavily reliant on, or have implications for, three waters infrastructure services. Officials have identified the following as particularly relevant:
  - Affordable housing – There are issues with funding and financing of three waters infrastructure necessary to ensure housing supply keeps up with demand.
  - Freshwater quality – Three waters infrastructure services have a direct impact on freshwater quality (and vice-versa). In some parts of New Zealand, it will not be possible to improve freshwater quality without tackling three waters infrastructure (e.g. leaky sewerage pipes and sewage overflows into waterways, and contaminants such as heavy metals in stormwater).
  - Regional development – Three waters services are a basic requirement for economic development. Some councils are struggling to meet current demand. Local authorities with small ratepayer bases may face affordability issues that constrain economic development, and three waters infrastructure is under pressure in areas experiencing high seasonal demand from tourism.
  - The public inquiry '10 Years on from the Shand Report' will look at local government funding and financing issues. The inquiry will likely examine three waters infrastructure given its significance in local government capital and operating expenditure, and challenges faced by some councils in funding large infrastructure projects.
  - Climate change – Three waters infrastructure is significantly impacted by climate change via changing rainfall patterns, more intense weather events, drought, and coastal inundation. The Government has identified the need to put climate change mitigation and adaptation at the centre of decision making, funding allocation and reporting.
  - Crown / Māori relationship – The Crown has acknowledged iwi and hapū rights and interests in freshwater, and processes and protocols have been established to progress work focused on governance, water quality, recognition, and economic development objectives. More work is needed to understand and address these matters in the context of three waters infrastructure. Iwi leaders have also raised issues about water quality and access for rural marae.
  - Consumer protection – The Government has committed to a number of initiatives aimed at assisting New Zealand's most vulnerable consumers.

## Other relevant work (existing and proposed)

- Government response to Havelock North Inquiry and current reviews of health and environmental standards for drinking water
- Possible review of the planning system
- National Policy Statement on Urban Development Capacity
- Urban development legislation
- Climate Change Adaptation Technical Working Group
- Infrastructure bonds, Housing Infrastructure Fund, Crown Infrastructure Partnerships and special purpose vehicles for infrastructure funding
- Ministry for the Environment (MfE) work on improving compliance, monitoring and enforcement
- MfE-led working group on Urban Good Management Practice

## Introduction

2. This paper reports on the initial findings of a Department of Internal Affairs (the Department) led cross-agency<sup>1</sup> review of three waters infrastructure services. This work was undertaken to provide a basis for advice to government on whether current system settings and practices are “fit for purpose”.
3. Officials are seeking a steer from you regarding further work to test our initial findings, engage with the local government sector and other stakeholders, and develop advice on possible options for improving the quality, adequacy, resilience and value-for-money of three waters services.

## Background to the work to date

4. Three waters services are lifeline utilities, critical to New Zealand’s economic security and prosperity, health, safety and environmental protection. A review of three waters infrastructure services was commissioned by the previous government in July 2017, following advice from officials about indicators of systemic issues in this core area of local government service delivery.
5. In line with Cabinet’s direction, officials focused on three areas: funding and financing; asset management performance; and compliance and monitoring. We also looked at overseas approaches to regulation and institutional arrangements for water infrastructure.
6. Work to date has involved a review of data and evidence (primarily from existing sources) in order to clarify the problem definition. The Department also commissioned reports to provide additional insights into asset management and governance – in particular how and to what extent councils are planning to meet current and future community needs for the three waters. Other than interviews with a sample of councils for this commissioned research, only light-handed engagement has been undertaken with local government and other stakeholders.
7. Officials have been working on the basis that, subject to Ministerial direction, a second phase of work – focused on detailed policy development and engagement with the sector – would be progressed in 2018, culminating in advice and recommendations to Ministers. The specific objectives, focus, process and timeframe for further work are all open for reconsideration, to ensure they are aligned with your goals and priorities.

### The three waters are:

- **Water supply:** potable (safe to drink) tap water to households and businesses.
- **Wastewater:** household business and industrial sewage and wastewater. Ninety-five per cent of wastewater is treated. Seventy-five per cent goes into the marine environment. Wastewater sometimes discharges into streams and rivers during heavy rain events.
- **Stormwater:** the management of rainfall and run-off in urban areas to reduce flooding and ensure the safety of people and property. It involves both hard infrastructure and overland flow paths which are influenced by land use and transport design. Most councils have some treatment processes (e.g. wetlands), but volumes are not known.

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<sup>1</sup> Department of Internal Affairs, Ministry for the Environment, and Ministry of Business, Innovation and Employment, with support from Ministry of Health and the Treasury

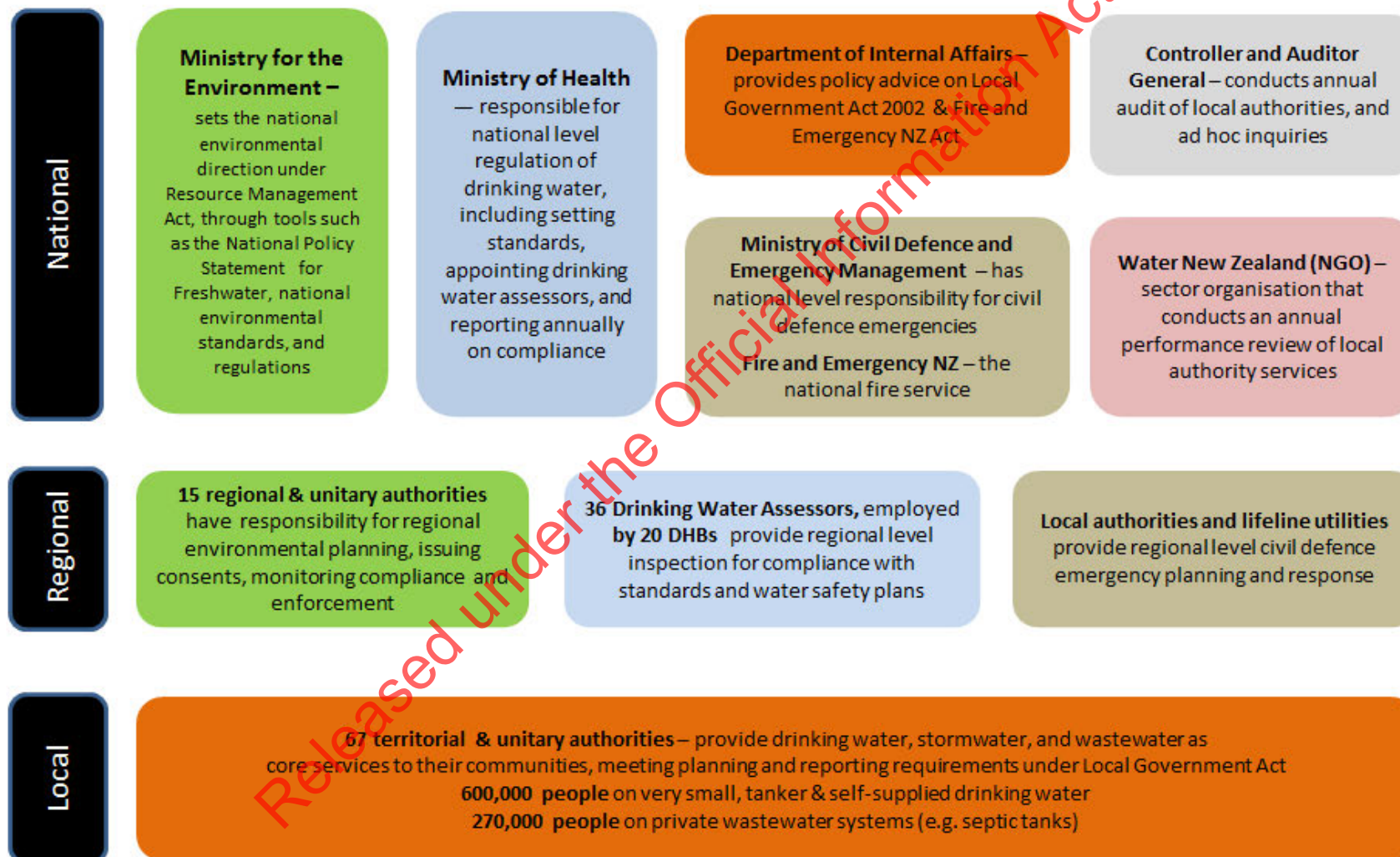
## Overview of the three waters system

8. Three waters infrastructure and services are complex, technical, expensive and largely hidden, making them challenging to maintain and deliver. In New Zealand, they are primarily owned and delivered by the 67 territorial (district and city councils) and unitary authorities, or (in the case of Watercare and Wellington Water) council-owned/controlled water organisations. Each local authority is the sole supplier, although a small but significant proportion of households and other services such as schools and marae provide their own drinking and wastewater (see sidebar). Most three waters provision in New Zealand is vertically integrated – councils and council controlled organisations are responsible for all aspects of the supply chain (supply, treatment and distribution). Regional councils play a key role in regulating the environmental effects of three waters services.
9. Under the current model, ratepayers/residents are both the owners and consumers of three waters infrastructure services. There is a reliance on local government mechanisms (e.g. consultative and democratic processes, information provision and reporting) to ensure that consumer needs and expectations are met. While New Zealand is not an outlier internationally in having many small-scale locally-owned monopoly water providers, it is unusual in that they are not subject to independent regulation to safeguard consumer interests. In New Zealand, such regulation occurs in other core infrastructure sectors such as gas, telecommunications and electricity.
10. The regulatory arrangements for three waters are summarised in the diagram overleaf. For drinking water, the regulatory approach is based on a 'multi-barrier' compliance and monitoring system under the Health Act 1956 and the Resource Management Act 1991 (RMA). Drinking water standards (NZDWS) are set by the Ministry of Health (MoH). Compliance is monitored and verified locally by drinking water assessors, and enforced by medical officers of health or health protection officers.
11. Suppliers are required to have a drinking water safety plan and take "all practicable steps" to comply with the NZDWS. MoH maintains a register of drinking water suppliers, licenses laboratories for drinking water testing, and reports annually on supplier compliance. There is a national environmental standard under the RMA, which requires regional councils to set and enforce planning rules to ensure that sources of drinking water are not affected in a way that would require higher levels of treatment to meet the NZDWS.
12. The regulatory approach for wastewater and stormwater is effects-based under the RMA. Rules and standards are set by regional councils, based on national environmental bottom lines established through national direction (e.g. national policy statements and national environmental standards). Regional councils are responsible for the compliance, monitoring and enforcement of these rules and standards.
13. The Local Government Act 2002 requires councils to provide "good quality" local infrastructure and services, including for three waters. Councils must prepare infrastructure strategies and long-term plans to set out, and consult on, plans for three waters services, including the stewardship of major assets and outcomes sought from investment. Councils must also report on key performance indicators in their annual reports.

## Three waters by the numbers

- National monitoring of drinking water quality covers 685 registered drinking water supplies serving approximately 3.7 million people – 99 per cent provided by local authorities.
- An estimated 600,000 people receive water from very small supplies (serving less than 25 people) or self-supply (e.g. roof water) and are not covered by the drinking water standards.
- Approximately 10 to 12 per cent of the New Zealand population is on roof-collected rainwater systems.
- Councils have an average of five wastewater treatment plants, with some having many more (e.g. Far North District Council has 15, Southland District Council has 18).
- Approx. 270,000 households, up to 20 per cent in some regions (e.g. Southland), have on-site wastewater treatment systems (e.g. septic tanks).

# Regulatory arrangements for Three Waters



## We have identified seven initial key findings through our work to date:

14. The information we gathered and reviewed for this work suggests that many councils are delivering high quality water services that comply with requirements, are monitored and managed by capable people, and subject to effective governance and decision-making processes.
15. However, we also found clear evidence of performance issues and pressure points within the three waters system. Overall, there is the significant variability in the extent to which councils meet their responsibilities with regard to three waters infrastructure. This variability is itself an issue in terms of achieving national objectives, ensuring equitable provision of essential services, and maintaining the integrity of the current devolved system.
16. We have drawn the following initial conclusions from our work. These are discussed in further detail in the following pages.
  - There are risks to human health and the environment in some parts of the country
  - There is evidence of low levels of compliance, monitoring and enforcement against a range of standards, rules and requirements
  - There is evidence of capability and capacity challenges, particularly for smaller councils
  - Variable asset management practices, and a lack of good asset information, are affecting the effectiveness and efficiency of three waters infrastructure/services
  - There is evidence of increasing affordability issues driven by a range of factors
  - There is inadequate system oversight and connections between key parts of the system
  - Reporting in its current form does not promote transparency, accountability and performance improvement



*There are risks to human health and the environment in some parts of the country*

17. Officials have provided you with a briefing on the Havelock North Inquiry, noting the release of the Stage 2 report on 8 December 2017. This is likely to contain recommendations for changes to the management and regulation of drinking water supplies across New Zealand.
18. As noted in that briefing, the majority of New Zealand's drinking water supply is safe to drink. Nevertheless, current information indicates that a significant minority of people (about 759,000, or 20 per cent of the serviced population) are served by supplies that did not fully meet the drinking water standards in 2015/2016. Of these 92,000 are at risk of bacterial infection, 681,000 of protozoal infection, and 59,000 are at risk from the long-term effects of exposure to chemicals. While non-compliance with drinking water standards does not mean that drinking water supplies are necessarily unsafe, high levels of non-compliance is nevertheless a cause for concern, and in some cases may indicate a risk to human health.
19. The safety of drinking water supplies relies on effective source management, treatment and ongoing monitoring. There is evidence of mixed practices in each of these areas. Smaller local authorities and supplies are more likely to be non-compliant with drinking water standards (see sidebar). This suggests variable access to safe drinking water across the country, and indicates a potential risk of another contamination event similar to Havelock North. There have been other contaminations in recent years (e.g. three E. coli contaminations in Canterbury since 2008), although none as significant in scale or severity as Havelock North.
20. While environmental reporting does not directly draw a link between three waters infrastructure and the quality of the receiving water, we know that wastewater and stormwater discharges and overflows can have negative effects on the health, ecology and swimmability of our lakes, rivers, streams, and beaches. The quality and quantity of fresh water sources used to supply drinking water are coming under pressure from population growth and changes to and intensification of land use. This may result in an increased need for treatment of all three waters, to ensure human health and environmental outcomes are maintained and improved.

## **Drinking water supplies and compliance**

- 85 per cent of New Zealanders covered by national monitoring are served by large or medium drinking water supplies (more than 5001 people); 13 per cent by minor supplies (501 – 5000 people); and two per cent by small supplies (101 – 500 people).
- Compliance with bacterial (E.coli) standards declines as supply size decreases. 99.2 per cent of the population received water from large and medium supplies that complied with bacterial (E. coli) standards. This dropped to 89.6 per cent for minor supplies and 77.8 per cent for small supplies.
- The overall economic cost of the Havelock North E. coli contamination was \$21 million, most of which (\$12.4m) was borne by the 5880 Havelock North households.



*There is evidence of low levels of compliance, monitoring and enforcement against various standards, requirements and rules*

21. It is difficult to establish an accurate and comprehensive picture of the extent to which local authorities and district health boards effectively exercise their compliance, monitoring and enforcement responsibilities.
22. There appears to be a relatively high tolerance for low compliance with the drinking water standards and other requirements on suppliers (e.g. approved water safety plans). Compliance with standards has been improving slowly (by 3.7 per cent over the past seven years). No formal enforcement action has been taken by district health boards since the current drinking water regime was introduced in 2007.
23. There is limited information available about monitoring and enforcement of consented stormwater and wastewater activities (e.g. discharges and overflows). That which is available suggests that a very small number of enforcement actions are taken. LGNZ survey findings from 2014 suggest that fewer than 50 per cent of local authorities comply with resource consent conditions for waste and stormwater, although the severity of these breaches is not known. The Ministry for the Environment has found relatively low levels of formal enforcement actions for breaches of resource consent conditions under the RMA more generally. Reasons for this are likely to include low priority, inadequate resourcing, poor capability, and perceived legal and relationship risks.
24. Compared to other countries, New Zealand is unusual in devolving three waters compliance, monitoring and enforcement responsibilities to regional agencies.

**In 2015/16:**

- No enforcement actions taken in relation to drinking water standards.
- No formal enforcement actions against local authorities relating to stormwater discharges.
- 18 per cent of wastewater treatment services were operating on an expired consent.
- Councils monitored 60 per cent of all resource consents under the RMA that were subject to conditions and required monitoring. 21 per cent of these monitored RMA consents were non-compliant.

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*There are capability and capacity challenges, particularly for smaller councils and small drinking water suppliers*

25. A consistent theme that has emerged through our analysis is the role that scale plays in relation to service quality and compliance, and asset management capability. Many (but not all) smaller councils have low levels of asset management maturity, and some are struggling to meet standards and consent conditions. Despite their small size, such councils often serve large geographical areas, and have to maintain a complex and dispersed infrastructure network.
26. The diagram overleaf illustrates the effect of scale on drinking water compliance and three waters asset management.
27. Smaller councils have limited resources, which need to be spread across many activities – including, but not limited to, water infrastructure. They can find it difficult to attract and retain highly capable staff with the necessary technical and specialist skills. Their smaller size and funding base can mean they employ people without formal training and qualifications in asset management and other relevant fields. It is also challenging for these councils to afford and make effective use of sophisticated monitoring and asset management technology, analytical tools and data systems.
28. As noted previously, New Zealand's small scale, locally owned monopoly providers are not unusual internationally. Many countries have local monopoly water services (e.g. 200 water service providers in Australia, 151,000 in the US). What sets New Zealand apart from others is the lack of central oversight. Unlike many countries, we do not have an independent or dedicated agency which takes a system view and acts in the interests of three waters consumers (e.g. by imposing information disclosure requirements, or regulating for price or quality). Greater central direction and oversight has the effect of improving performance at the local level, by setting clear expectations and putting in place the enabling conditions for them to be achieved.

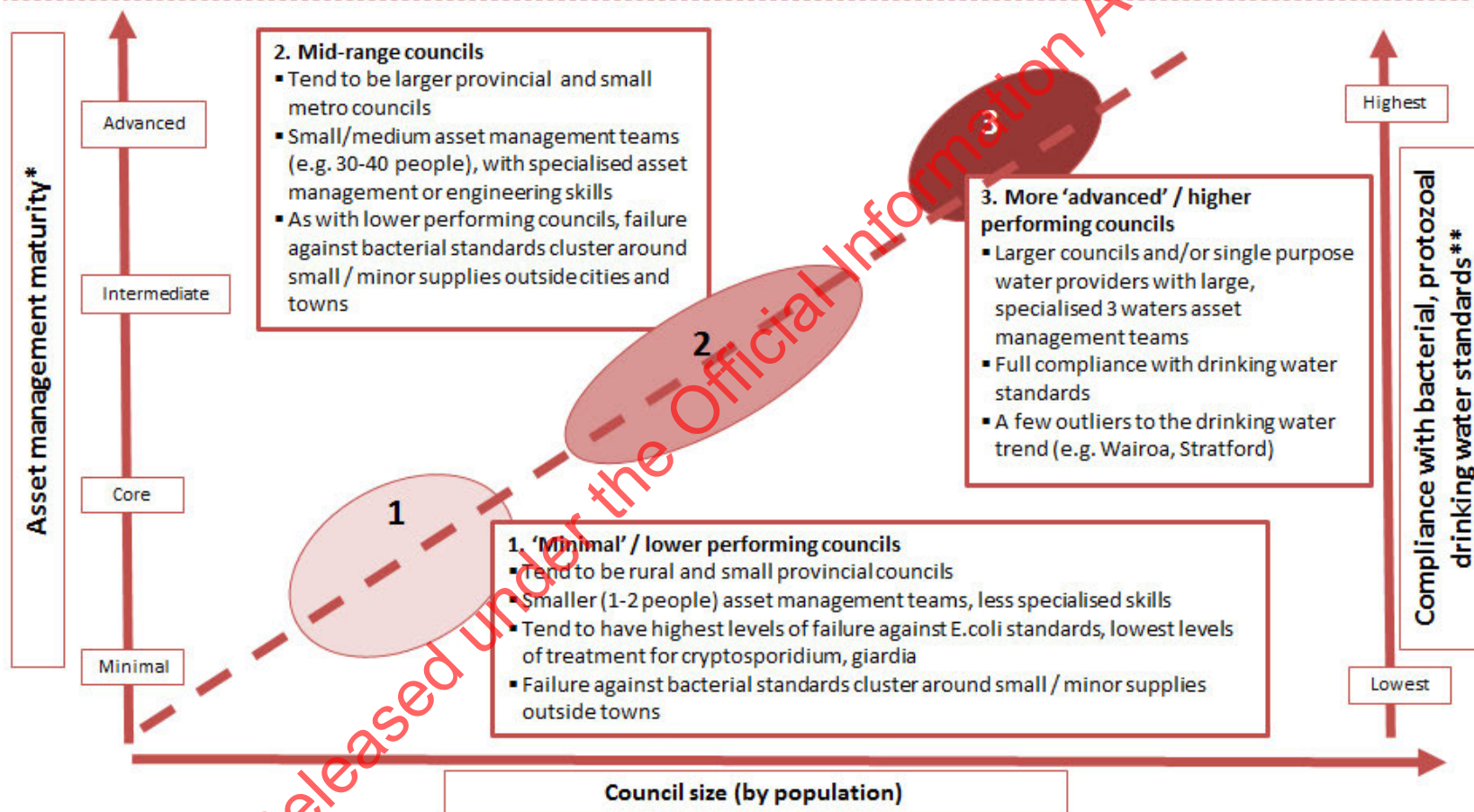
## Numbers of staff

- The size of council asset management teams varies considerably – from one or two people in smaller councils, to 40+ in larger organisations.
- Local authorities had 374 full time equivalent (FTE) compliance and monitoring staff in 2014/15. Thirty-one local authorities had one or less FTE; 10 had none.
- Thirty-six drinking water assessors are employed / contracted by 20 District Health Boards.

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**Council size correlates with 3 waters asset management maturity and compliance with drinking water standards**

- More mature asset management, and higher performance in relation to meeting drinking water standards, tends to be found in mid to large councils, or single purpose entities (Watercare in Auckland, and Wellington Water)
- The general trend is that, as the size of council decreases, there are less mature asset management practices, and lower levels of compliance with drinking water standards that relate to bacteria (E. coli) and protozoa (giardia, cryptosporidium)



\* Based on a sample of 22 councils (6 rural; 10 provincial; 6 metro/unitary. Of this sample, 1 is 'advanced'; 4 'intermediate'; 12 'core'; and 5 'minimal'

\*\*Based on Annual Report on Drinking-water Quality 2015 / 2016

*Variable asset management practices, and a lack of good asset information, are affecting the performance of three waters infrastructure/services*

29. Water infrastructure is complex, technical, expensive and largely hidden, making these challenging assets to manage and govern. Research commissioned by the Department indicates considerable variations across New Zealand in the maturity of asset management practices, and in the strength of governance arrangements and decision making relating to the three waters. These variations are largely related to scale, resourcing and capability. As the previous page highlights, asset management tends to be more mature in large councils. More advanced practices have also been observed in dedicated, council-owned/controlled water organisations (Watercare and Wellington Water).
30. Many councils are working to increase their asset management maturity and strengthen their governance arrangements, but there are risks that improvements will not be sustained or will not occur across the system.
31. A review of councils' long-term plans and infrastructure strategies suggests that councils are renewing their assets (i.e. replacing old or failing assets). Over the last three years, councils spent \$1.8 billion on replacement of three waters assets. Larger scale replacements will be needed 20 to 40 years from now.
32. However, the information that councils have about their water assets is incomplete, and data is not being used as well, or extensively, as it could be to support decision making. For smaller councils in particular, the immediate issue appears to be the availability of sufficient asset management information to understand asset condition, criticality, and replacement needs. While medium and larger councils also have generally low levels of confidence in, and understanding of, asset criticality, they tend to be in a better position to take the steps needed to address this.
33. Not having this kind of information can have a number of repercussions. It may mean that councils are unable to make 'optimal' decisions about the timing and nature of major investments, or fail to extract maximum value from current assets, resulting in unnecessary costs and/or poor value for money for communities. It can also mean local residents and businesses do not receive essential services at the time and level they need.

### **Case Study: Taupō District Council**

Investing in good asset information has helped reduce costs for the Taupō District Council, but this requires technology and expertise that smaller councils may struggle to afford

- Mangakino (with 660 homes) has 19 kilometres of earthenware wastewater pipes, which are at the end of their expected life of 60 years. Complete renewal of the pipes has an estimated cost of \$7 million.
- The Council is instead investing approximately \$320,000 in a CCTV survey of the network and options analysis. It is able to precisely target its renewal expenditure to pipes that failed and avoid unneeded expenditure on pipes that can continue to provide service. The approach shows that an investment in good asset information can significantly reduce capital costs over time and help guide good decisions.

*There is evidence of affordability issues in some places*

34. There are three broad categories of funding pressures on local authorities.

- **Growth:** High growth councils are investing significantly in assets for growth, but are still struggling to supply sufficient serviced land to meet demand. Over the last two years, development contributions funded only 54 per cent of capital expenditure by councils on all types of infrastructure, leaving about \$615 million to be financed by ratepayers. In the short term this is pushing some councils against debt ceilings. Better information on cost pressures and funding gaps for high growth councils will be forthcoming in their housing and business development capacity assessments from the National Policy Statement on Urban Development Capacity (due December 2017), and council long-term plans (due by June 2018).
- **Renewals:** The renewal of three waters infrastructure assets to maintain services does not appear to be an immediate issue for most, though some small councils are debt averse and reluctant to borrow within their means to invest in renewing or upgrading infrastructure. We found that about two-thirds of councils are not fully funding the depreciation costs of their three waters assets, thereby shifting cost onto future ratepayers. Even assessing asset condition to enable well planned renewals can be financially challenging for some councils.
- **Meeting increased expectations:** All local authorities are facing expectations of improved services (e.g. meeting drinking water standards; national directions on fresh and coastal water quality; and expectations for infrastructure resilience). The impact of these expectations on local authorities varies depending on other funding pressures, geography, and current standards of service. The capital and ongoing operating costs of meeting new standards are not well understood in some areas. This is particularly the case in meeting freshwater standards, where there has been limited costing of actions necessary to meet them (e.g. removing chemical contaminants from stormwater, reducing wastewater overflows, or improving treatment of wastewater discharges). The recent LGNZ Water Declaration identifies the need to quantify these costs. Officials agree and propose to commission work accordingly.

35. The Crown has made significant, but intermittent, investments in three waters infrastructure in the past (e.g. the Drinking Water Assistance Programme (2005-2015) and the Sanitary Works Subsidy Scheme (2003-2013)). Previous funding approaches have tended to be applications-based and focused on upfront capital costs. The need for financial assistance to construct some water and wastewater schemes suggests similar support will be required to renew or replace them in future.

#### Funding tools available to councils

- General and targeted rates
- Development contributions
- Borrowing
- Metered charges for water
- Fees and charges

#### Financials for three waters

- Book value of \$31.8 billion; replacement value of \$51.4 billion.
- Water infrastructure costs represent about 25 per cent of local government expenditure.
- Forecast three waters capital expenditure between 2017 and 2025 is \$11.3 billion.
- Fifty-six per cent of the \$1.3 billion local authorities have invested in assets for growth over the past three financial years has been in three waters.
- Overall, local authorities have invested \$3.2 billion in three waters services over the past three financial years.

*There is inadequate system oversight and inadequate connections between key parts of the system*

36. Central government has a strong interest in ensuring effective functioning of the devolved system for three waters infrastructure (see Government priorities on page 3). Government agencies influence and support this system by issuing national directions, providing guidance, collecting data and information to monitor activities and outcomes, and in some instances providing funding.
37. Overall, central government has been relatively hands-off in supporting local authorities to implement national directions and other centrally-set requirements, and may have given inadequate attention to ensuring they have the skills and resources to do so effectively. The Ministry for the Environment has acknowledged the need to improve central oversight and provide more active support for local government compliance monitoring and enforcement functions under the RMA.
38. There are multiple Ministers and government agencies with an interest in water infrastructure, with no single lead agency or formal coordination mechanism (such as an agreed strategic plan or shared work programme).
39. There is also a lack of “feedback loops” and linkages built into the system to ensure infrastructure planning and investment decisions are informed by relevant information and assessments regarding compliance with quality standards and the achievement of intended outcomes.

#### **Government agencies with a role and interest in three waters**

- Department of Internal Affairs
- Ministry for Civil Defence and Emergency Management
- Ministry for the Environment
- Ministry of Business Innovation and Employment
- Ministry of Health
- Te Puni Kōkiri
- The Treasury

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*Transparency and accountability are relatively light for an essential service*

40. Local government is predicated on transparency and accountability of local authority services to their communities. Alongside this, ratepayers and service users expect that local authority services will be well managed and meet appropriate standards. Few have the time, expertise and interest to make their own assessment of their local authority's performance in respect of water infrastructure.
41. The current system requires only rudimentary public disclosure of information, and there is fragmentation in the information collected and published by different agencies and organisations (see sidebar). Moreover, much of the information that is available is published in annual reports or technical compliance/monitoring documents, and is not interpreted for consumers or presented in a form that is easily accessible to them.
42. The consequence is that ratepayers and service users in many parts of the country cannot easily assess:
- whether there are risks associated with drinking water in particular places;
  - whether quality and environmental standards are being met;
  - what level of monitoring or enforcement is occurring on their behalf by local authorities;
  - how well publicly-owned assets are being managed.
43. These features of the present system put weak incentives on council managers and governing bodies to manage three waters services well.
44. The National Infrastructure Unit's 30 Year Infrastructure Plan (2015) noted significant recent improvements in the quantity of information available about three waters services. An increase in the quantity of information does not necessarily equate to an increase in quality. Information continues to be provided through multiple diffuse sources, using different metrics and measures. It is not integrated, analysed, and presented in a way that maximises its benefit for transparency, accountability and decision making.
45. Unlike many countries New Zealand does not have an integrated framework and a single agency that takes responsibility for sourcing, consolidating, linking and interpreting three waters information. At present, this role is being filled by Water New Zealand, a non-governmental organisation, on a voluntary basis, with questions around the reliability of some data. LGNZ has developed a Three Waters 'National Information Framework', intended as a first step toward providing better information and more transparent sector performance, but to date this has only involved the completion of a survey of 70 councils in 2014.

## Reporting for three waters services

- Local authority annual reports and long-term plans.
- Compliance, monitoring and enforcement reports (some councils only).
- Water New Zealand (sector NGO) annual National Performance Review currently covering 50 territorial authorities and council-controlled water service providers, who participate on a voluntary basis.
- Ministry of Health annual report on drinking water quality.
- Water for New Zealand drinking water website (Institute of Environmental Science and Research under contract to the Ministry of Health).
- Ministry for the Environment national environmental reporting.
- Ministry for the Environment RMA National Monitoring System.



## The challenges for three waters infrastructure are increasing

46. The operating environment for three waters services is becoming more challenging across three dimensions, as outlined below. The available evidence suggests that the system is not well-placed to meet these new pressures.

**Quality:** Community expectations and regulatory requirements are increasing:

- Increasing community expectations on wastewater treatment and stormwater management.
- Further strengthening of quality requirements under the National Policy Statement for Freshwater Management 2014.
- Any additional national direction (e.g. national policy statements) would increase compliance load.
- Likely recommendations from the Havelock North Inquiry could increase standards further.
- Many small councils will need to maintain and improve three waters services with a declining ratepayer base.

**Quantity:** Local authorities are facing increasing demand for three waters services, sometimes with supply constraints:

- Increased water infrastructure capacity is necessary to support housing and business growth.
- Water over-allocation is already a reality in some regions.
- There is some use of non-regulatory approaches to manage demand (e.g. water metering; awareness raising; water use limits) but scope to do more.

**Complexity:** Local authorities are having to respond to new expectations and requirements:

- Greater recognition of iwi and hapū interests and voice in all aspects of water management.
- Hazard management and resilience (e.g. new requirements under 2017 amendments to RMA).
- Climate change adaptation (e.g. rainfall changes, extreme weather events; coastal inundation.)
- Integrated approaches to land and water planning and management, to support multiple outcomes (housing and urban development, environmental, and economic).
- Technological and engineering advances and innovative design approaches (e.g. water-sensitive urban design).

## Important implications for New Zealand if the three waters system does not meet current and future pressures

- increased risks to public health, particularly in smaller centres, with potentially significant implications such as those seen in Havelock North
- risks of not meeting national and local environmental outcomes for freshwater and the marine environment
- limitations on developing the regions, particularly for small tourism centres with high seasonal peaks
- difficult for housing infrastructure supply to meet demand in high growth areas
- constrained ability to plan and fund resilience to climate change and natural hazards
- unnecessary costs and/or poor value for money due to sub-optimal decisions on the timing and nature of major investments.

## These challenges are already evident in some places, where councils are facing difficult investment decisions and trade offs

### *Investments in improving freshwater quality are a significant cost for small communities like East Rotoiti, Rotomā and Matatā*

- Rotorua Lakes Council is providing sewerage schemes to most lakeside communities, about 2,300 properties, to improve lake quality and protect public health. The latest scheme for East Rotoiti and Rotomā will serve 700 properties and has an estimated cost of \$35.3 million. This will be largely funded by the Ministry of Health, Ministry for the Environment and Bay of Plenty Regional Council. Targeted rates on connected properties will fund the balance of \$9.4 million.
- Proposed sewerage reticulation for Matatā, serving 642 residents, has an estimated cost of \$20 million. It has funding commitments from the Ministry of Health, Bay of Plenty Regional Council and Whakatāne District Council of \$13.2 million, leaving a shortfall of \$7.8 million.

### *Tasman District Council's water supply decisions involve trade-offs between affordability and public health risks*

- Two thirds of Motueka's 7,593 residents rely on water sourced from private bores on their properties. The remaining third have council-supplied water. This makes Motueka the largest urban area in New Zealand without a full water supply network.
- The number of bores and their age mean Motueka's aquifer may be at high risk of contamination. Water supply risk mitigation and funding options will be considered as part of the Council's 2018-2028 Long-Term Plan.

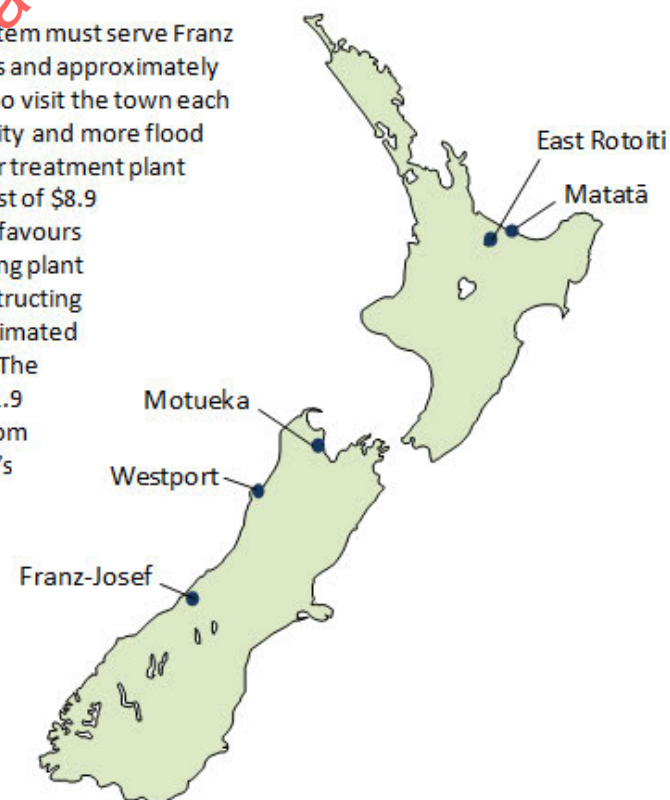
### *Buller District Council's water supply decisions about renewing failing infrastructure involve trade-offs between affordability and resilience*

- Water is not entering the Westport and Carters Beach water supply reservoirs through an aged tunnel system because a tunnel collapsed in 2016. The Council is temporarily pumping water from alternative sources to serve the local population of 5,000 residents.

- The tunnels are known to be at risk of failure. The Council favours repairing the damaged section of tunnel at an estimated cost of \$2 million. The system will remain at risk of future tunnel collapses.

### *Franz Josef's wastewater system is flood-damaged and is not coping with the rising demand from tourism – Westland District Council's investment decisions involve trade-offs between affordability and resilience*

- Franz Josef's oxidation ponds were significantly damaged as a result of a major flood in March 2016. As a result, partly treated wastewater is being discharged onto the bed of the Waiho River.
- The wastewater system must serve Franz Josef's 441 residents and approximately 1 million tourists who visit the town each year. A higher capacity and more flood resilient wastewater treatment plant has an estimated cost of \$8.9 million. The Council favours upgrading the existing plant and ponds and constructing a stopbank at an estimated cost of \$3.4 million. The Council is seeking \$1.9 million in funding from central government's Tourism Infrastructure Fund. This system would remain at risk of future floods.



## Sector stakeholders agree there are issues that need to be addressed, and consumers recognise the importance of three water services

### Local Government New Zealand

**2017 Water Declaration** reaffirms a commitment to quality, and signals cost issues for the three waters.

**2015 three waters position paper** recognised issues with understanding customer needs, managing assets, and recovering costs, and suggested a co-regulatory approach to lift performance of the sector.

### New Zealand Local Government Survey 2017 (LGNZ)

Of the five local government services that are 'most important' to the public, water supply is now the top of the list, and wastewater is third.

Nine in 10 respondents were aware that local government is responsible for water.

### Water New Zealand

**Submissions to the Havelock North Inquiry** indicate support for a single drinking water regulator/compliance, monitoring and enforcement agency.

Is looking to the Havelock North Inquiry to increase drinking water standards.

### New Zealand Water Consumer Survey 2017 (Water NZ)

Overall, 83 per cent of respondents were confident their water suppliers provide high quality drinking water, but levels of confidence vary according to where people live (lower in rural than urban areas).

89 per cent of respondents expressed concern about drinking water quality.

### Office of the Auditor-General

**2014 report** highlighted significant concerns about three waters asset management, and funding and financing.

**2017/18 work programme** includes a significant focus on water.

### Environmental Defence Society

**2017 report** found that compliance, monitoring and enforcement of RMA consents is inadequate (including three waters-related consents).

### Iwi leaders

Interested in the impacts of three waters on Te Mana o te Wai, and have previously sought to address (and continue to raise concerns about) the uncertainty of supply of potable water on marae and papakāinga.

Officials (led by MfE) are currently exploring options for addressing this uncertainty.

## There is potential to strengthen the three waters infrastructure system

47. The existing issues and increasing challenges outlined in these initial key findings indicate significant scope to strengthen the three waters infrastructure system. We have identified four key drivers of system performance, where change could be considered:
- Information:** Accessible, robust and consistent information for consumers, local government decision-makers and central government policy-makers
  - Capacity and capability of service providers and regulators:** Addressing scale and specialisation, recognising that a one size fits all approach may not be appropriate
  - Funding and financing mechanisms:** Providing a wider sets of funding tools and sources that recognise the need to address multiple issues (growth, rural access, resilience, increasing standards, innovation and technological advances)
  - Central oversight and associated regulatory settings and institutional arrangements:** Improved consumer protection, health and environmental regulation, and institutional arrangements to support effective central coordination, strategy and oversight.
48. We recommend a system-wide approach and that any change involves a package of measures that tackle all four drivers of performance. Overseas and New Zealand experience shows that these drivers are mutually reinforcing. Focusing on only one or two of them is unlikely to achieve a lift in system performance. For example, increased funding may not necessarily translate to better quality water services, without better information to inform investment decisions. Similarly, stronger regulation or central oversight may not lead to performance improvements, if there is not improved capability and capacity at local level.
49. There are choices about the extent of change in each of the four areas identified above, ranging from adjustments to the status quo, through to major change to the current model. It may be possible to take a staged approach to any changes, to address some issues in the short to medium-term, while longer-term or more systemic change is considered.
50. Many different models are used to deliver and regulate three water services internationally. Each has been developed in response to particular issues and circumstances, and they have often evolved over time. Part of any next phase of work would be to examine these different models in detail, including potential application to the New Zealand context.

## What does the international literature say about what a fit-for-purpose system looks like?

- Clearly led or well-coordinated approach to central government policy pertaining to water infrastructure
- Separation of policy, regulation and delivery (independent regulation or regulatory oversight)
- Effective monitoring and enforcement of regulations
- Open and transparent information and reporting, for consumers and decision-makers
- Well governed and managed and technically capable utility operators, with clear objectives and with adequate resources, to enable them to focus on delivering efficient and effective services.



## Proposed next steps

51. The analysis presented in this report was completed in a fairly tight timeframe, based mainly on existing information. As such, these findings are initial ones that would benefit from testing with the local government sector and wider stakeholders, including Māori. As noted above, significant further work is needed to identify and assess possible options for change.
52. Officials are seeking a steer from you as to whether the Government wishes to progress this work further. If so, we would recommend the following scope and approach. Given the intersection and overlap with other Ministerial interests and priorities, we suggest you consult your colleagues to test their appetite for potential reform of the three waters infrastructure system.

**Scope:** Officials propose that further work focus on identifying and exploring options for change across the four areas identified above (information; capacity and capability; funding and financing; and central oversight and associated regulatory settings and institutional arrangements). This would include more detailed consideration of different models and approaches for the delivery, funding and regulation of three waters services. It would also identify priorities areas, and consider how change could be staged over the short, medium and long-term.

**Approach:** We propose that this work continue to be undertaken as a cross-agency project, led by the Department. Local Government New Zealand, Water New Zealand and other relevant organisations are aware of this work and can contribute positively to it. We recommend that any next phase of work be undertaken in partnership with key stakeholders, particularly local government. We can develop a detailed plan for broad sector and stakeholder engagement, including opportunities for Ministerial involvement and iwi input.

53. Once scope and approach are confirmed, we will be better placed to provide you with advice on the proposed process, timeframe and costs associated with completing this work. Any further work beyond June 2018 will need to be resourced, for which funding may need to be sought in Budget 2018.
54. If you wish to consider an immediate injection of funding into three waters, we can provide you with further advice on options that best address your priorities and objectives, but which do not preclude (or are aligned with) wider system change. Any such injection of funding would need to be supported by a Budget proposal.

## Ministerial portfolios with a core interest in three waters:

- Climate Change
- Commerce and Consumer Affairs
- Environment
- Finance
- Health
- Housing and Urban Development
- Infrastructure
- Local Government
- Regional Economic Development
- Transport

## Other Ministers who are likely to want to be kept informed:

- Building and Construction
- Civil Defence
- Māori Development
- Rural Communities

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