



Introducing our work programme – *Water management*



Photo acknowledgement:
Michal Klajban

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management*

October 2017

ISBN 978-0-478-44275-5

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Introduction

New Zealanders rely on water for our health, our economy, and our lifestyle. For Māori, water is an important spiritual and cultural resource that is regarded as a taonga. The oceans that surround us and our lakes and rivers are a strong part of our landscape and identity. They are vitally important to our health and our economy, we enjoy them in our recreational pursuits, they support our biodiversity, and they form part of our international appeal.

It is essential that water resources are well managed. The way we are living and how we are meeting our economic and social aspirations are affecting this critical natural resource. An increasing population, the way we produce our food, how and where we live, ageing infrastructure, and climate change effects are just some of the challenges facing public sector organisations¹ in carrying out their water management roles and responsibilities.

We will consider how well organisations are carrying out their water management responsibilities, to understand how New Zealand is positioned for the future.

The last year has included many water management issues, including the Havelock North drinking-water contamination, the flooding of Edgumbe, and their consequent inquiries. The Government has advanced its “Clean Water” proposals, released reports about the state of the marine environment and freshwater under the Environmental Reporting Act 2015, is reviewing water allocation issues, and has begun a review of “three waters” services – drinking water, stormwater, and wastewater.

Media reports are increasingly focused on New Zealanders’ concerns about the state of our water resources and how well they are managed. Water concerns are not the same in all areas, but there has been considerable public interest in topics such as bottling water to sell overseas, the proposed Ruataniwha water storage scheme, the aftermath of flood events, and the “swimmability” of our lakes and rivers.

In deciding to make water management a theme of our work, we were mindful of not duplicating the work of others, such as Local Government New Zealand and the Parliamentary Commissioner for the Environment. We do not have a role in commenting on policy decisions, nor do we plan to second-guess the science associated with water management.

What we bring to the topic is the independence that enables us to look at the water management system as a whole – across central and local government and beyond political cycles. We audit many organisations involved in water

¹ We can examine the activities of public sector organisations but not private companies. For simplicity, we refer to “organisations” in this report, instead of always clarifying that we mean *public sector* organisations.

management – such as the Ministry for the Environment, the Ministry for Primary Industries, regional councils, city and district councils, the council-owned companies that manage drinking water, wastewater, and stormwater, district health boards, and the Ministry of Health – and this allows us to draw on our existing knowledge and previous work.

Starting in 2017/18, we will look at water management activity in several organisations, focusing on drinking water, freshwater, stormwater, and the marine environment.

We intend to provide independent assurance to Parliament, the organisations that we audit, and New Zealanders about the state of water management. We will highlight any improvements that are needed in the public management of water and in the accountability and transparency of organisations for their decision-making and performance.

At the end of our work on water management, we will produce a report that draws together our observations and recommendations.

A handwritten signature in black ink, consisting of a stylized 'G' followed by a series of horizontal strokes.

Greg Schollum
Deputy Controller and Auditor General

19 October 2017

Why is the Auditor-General interested in water management?

1.1 In this report, we:

- explain why we are looking at water management;
- highlight the issues associated with water management;
- identify the main themes we want to explore through our work; and
- provide an overview of our work and explain why we chose to look at drinking water, freshwater, stormwater, and the marine environment.

Ko te wai te ora ngā mea katoa

1.2 The quotes that we use from other agencies' reports do not represent our views. We have included them to show some of the challenges that others have identified and associated with water management.

What do we mean by “water management”?

1.3 We use the term “water management” in this report to cover the roles and responsibilities given to organisations (mainly government departments and local authorities) through government policy or legislation. The main pieces of legislation are the Resource Management Act 1991 and the Local Government Act 2002.

1.4 These roles and responsibilities include:

- setting strategic priorities and policy;
- implementing government policy, including Treaty settlements that affect water bodies;
- regulating use of water and the effects of activities on water (plan-making and consenting);
- monitoring and enforcing compliance with the standards that organisations set and the consents they grant;
- monitoring the state of the environment;
- providing “three waters” services to communities – drinking water, stormwater, and wastewater;
- providing funding for projects to supply water for irrigation and clean freshwater bodies and marine water; and
- conducting research and reporting on the state of New Zealand’s water resources.

1.5 We have taken a broad view of water – freshwater resources (with a focus on rivers, lakes, streams, and aquifers), the marine environment (excluding fisheries), and three waters services delivered to communities.

1.6 The overarching question that will guide our work is this:

How well are publicly funded organisations managing water resources and delivering water-related services, for the benefit of New Zealanders now and in the years to come?

Why are we looking at water management?

- 1.7 Water is a significant natural resource that all New Zealanders rely on for their physical, economic, environmental, social, and cultural wellbeing. If you rely on something, you need to manage it well over the long term.
- 1.8 Our role is to provide independent assurance to Parliament and the public that organisations funded by taxes and rates are operating, and accounting for their performance, in keeping with Parliament’s intentions.
- 1.9 Parliament has given some of these organisations roles and responsibilities for water management. Significant investment is made in managing water and delivering water-related services. The organisations are accountable to Parliament (and, for councils, accountable to their communities) for how they use these powers and spend taxpayer and ratepayer funds.
- 1.10 Parliament and the public expect organisations to exercise their water management roles and responsibilities, and spend taxpayer and ratepayer funds, in the best interests of New Zealanders.
- 1.11 There are many challenges in managing water and delivering water-related services, which we outline in Part 2. They include legacy issues associated with land use (both rural and urban), providing infrastructure for growing communities, ageing infrastructure, and the challenges associated with responding to change – including climate change and changing regulatory standards.
- 1.12 We are interested in how these challenges are dealt with from a public management and accountability perspective:
- how organisations are meeting their obligations;
 - whether they are spending taxpayer and ratepayer funds wisely; and
 - how well they are communicating with New Zealanders on what they plan to do, how they intend to achieve their plans, and how well they are performing.
- 1.13 Our independent position means we can take a long-term view and look at the whole public management system. We cannot comment on the policies of organisations such as government departments and local authorities – to do so

would mean we are no longer acting independently. We have also chosen not to second-guess the science associated with water, particularly water quality. This is the domain of others. However, as appropriate, we might comment on the implications of the scientific results we consider during our audits.

- 1.14 We cannot cover all water management issues. We have chosen eight topics that span drinking water, freshwater, stormwater, and the marine environment. They enable us to consider the challenges outlined in Part 2 and the themes described in Part 3. Although we are not explicitly covering wastewater management as a topic in its own right, it is likely to feature in some of our other work because of the effects of wastewater discharges on freshwater quality and the relationships between wastewater and stormwater networks.
- 1.15 We intend to be constructive in the work we do on water management, to identify any required improvements in how water resources are managed and water-related services are delivered. We can do this by sharing good practice and innovation, highlighting where entities are working well together. We will also identify any issues, risks, and opportunities that the organisations we audit are grappling with in carrying out their water management roles and responsibilities.
- 1.16 We have reported on water management previously, including the following reports:
- *Water and roads: Funding and management challenges* (in 2014);
 - *Managing freshwater quality: Challenges for regional councils* (in 2011);
 - *Local authorities: Planning to meet the forecast demand for drinking water* (in 2010); and
 - *Horizons and Otago Regional Councils: Management of freshwater resources* (in 2005).
- 1.17 Water is a topic of increasing interest internationally, with many countries experiencing significant pressures on their water resources. Many other audit offices have carried out audit work on water-related topics – the availability of safe drinking water; competing demand for limited water supplies; dealing with drought and flooding; the quality of rivers, lakes, and other surface water; the marine environment; adequacy of data; and the effects of climate change.
- 1.18 We have been involved in developing international guidance for audit offices on auditing water issues and fisheries management. We lead the Pacific Association of Supreme Audit Institutions' regional working group on environmental auditing. The purpose of this group is to encourage and build capacity for environmental audits. We have supported co-operative audits by colleagues in Pacific Island audit offices on environmental topics, including water and marine topics.²

² See the section on co-operative performance audits on the PASAI website, at www.pasai.org/cooperative-performance-audit-reports/.

2

Challenges associated with water management

- 2.1 In this Part, we highlight some of the main challenges now facing organisations in managing water and delivering water-related services, and the challenges expected in the years ahead.
-
- He taura whiri kotahi mai anō te kopunga tae noa ki te pu au*
-
- 2.2 The interconnectedness of the water cycle, the relationship between land use and water quality, and the place that water plays in our physical, economic, social, and cultural well-being are at the heart of the challenges associated with water management.
- 2.3 There are several factors that make governance in the public sector complex and challenging. Organisations are set up for a defined purpose and are limited by what their enabling legislation allows them to do. There can be conflicting objectives and priorities throughout the public sector. Also, our water management system devolves a significant level of responsibility for implementation from central to local government.
- 2.4 Decisions about how water is managed and how water-related services are delivered are made within a specific legal, political, and institutional context. We expect organisations to base their decisions on reliable information, to be transparent about how they arrived at decisions, and to be transparent in reporting on their performance. Organisations must also consider the limits of the resource itself, the values of water users, and the costs of meeting community expectations.

Addressing legacy issues

Water and land use

- 2.5 New Zealand is facing legacy issues associated with how we have used our land and water resources to support our economy.
- 2.6 Our water resources are of particular importance to our primary sector and tourism – the two most significant contributors to our economy. Conversely, our economy has an effect on the water resources it relies on – for example, diffuse pollution from steady increases in intensive
-
- The impacts of past and present water uses on water quality have yet to manifest fully. In some instances ... it can take years for the nutrients to affect water quality. The lag between the initial water pollution and water quality deterioration means that the current situation is only a partial representation of the real water quality problem.*
- NZIER public discussion paper – Water management in New Zealand, March 2014, page 13*
-

farming, irrigation requirements, and sedimentation from land development generally.

- 2.7 Addressing these adverse effects and delivering outcomes that could take generations is challenging to achieve in short political cycles, and when multiple organisations are working to deliver these outcomes.
- 2.8 It is also hard to find clear information about the costs of improving water quality, even though transparency about costs and benefits of policy and investment choices and any trade-offs is essential for making good decisions.

Investment in water infrastructure

- 2.9 A significant proportion of our water infrastructure was built after World War II and is coming towards the end of its expected life. It is likely that much of the water-related infrastructure owned by local authorities will need to be repaired or replaced between 2040 and 2060.³ In June 2016, the estimated replacement value for the infrastructure that delivers three waters services was \$54.7 billion.⁴
- 2.10 We have reported that local authorities might not be reinvesting enough in three waters assets, suggesting that these assets could be deteriorating to an extent that they are unable to meet the levels of service that their communities expect.⁵ We will continue to explore and report on this matter.
- 2.11 Many local authorities are facing potentially significant costs associated with ensuring that their water services infrastructure meets changing environmental standards.

Responding to change

- 2.12 The environment in which we live is changing at a rapid pace – including climate change effects, changing demographics, new technology, the values our communities place on the environment, the services communities expect from the public sector, and shifting regulatory settings. These changes are affecting how organisations manage water resources and deliver three waters services.

Climate change impacts

- 2.13 The average temperature over New Zealand has warmed by about 0.9°C since 1900.⁶ A new report commissioned by Greater Wellington Regional Council shows that the Wellington region could see a temperature rise of up to another 3°C by

³ Office of the Auditor-General (2014), *Water and roads: Funding and management challenges*, page 7.

⁴ Department of Internal Affairs' analysis of local authorities' 2016 annual reports.

⁵ Office of the Auditor-General (2017), *Local government: Results of the 2015/16 annual audits*.

⁶ New Zealand Climate Change Centre (undated), *IPCC Fifth Assessment Report New Zealand findings*.

2090 – which would make Wellington’s climate more like that of present-day Sydney, Australia.⁷

- 2.14 Although there is variability from year to year, rainfall totals have increased in the southwest of the South Island and have decreased in the north of the North Island. Some heavy rainfall events have become more intense because higher temperatures allow the air to carry more moisture. Global sea levels have risen about 19cm since the start of the 20th century, and are almost certain to rise at a faster rate in the future.⁸
- 2.15 New Zealand is particularly sensitive to the effects of climate change. Many New Zealanders live on the coast and on floodplains, we rely on the availability of freshwater, and we are surrounded by oceans.

Natural hazards

- 2.16 New Zealand is vulnerable to natural hazard events – earthquakes, flooding, and land slips. Developing resilient communities, including the water infrastructure to enable them to survive and thrive, is important to the public sector. The Ministry of Civil Defence and Emergency Management is preparing a new *National Disaster Resilience Strategy*, in collaboration with local and central government and other agencies with a role in preparing for and responding to natural hazard events.

Changing demographics

- 2.17 Our population is increasing and ageing, with more of us living in cities. New Zealand is among the most urbanised countries in the world. In 2014, 86% of the population lived in towns of 1000 or more people.⁹ This increasing urbanisation is putting pressure on our water resources and the infrastructure to deliver three waters services.
- 2.18 The \$1 billion Housing Infrastructure Fund has recently been divided between five high growth areas – Auckland, Te Kauwhata (in the Waikato), Hamilton, Tauranga, and Queenstown. The Fund recognises the limitations of rates as the principal funding stream for investing in infrastructure and enables councils with high growth to advance infrastructure projects, such as three waters services, that are important to increasing housing supply.
- 2.19 Conversely, there are areas in New Zealand that are experiencing declining populations. There, councils have to make difficult choices about whether to

7 See the climate change section of Greater Wellington Regional Council’s website, at www.gw.govt.nz/climate-change/.

8 See *Climate Change Implications for New Zealand*, the Royal Society of New Zealand, April 2016, page 11.

9 OECD (2017), *OECD Environmental Performance Reviews: New Zealand 2017*, OECD Publishing, Paris, page 43.

reinvest in their water assets or consider new ways of delivering services to their communities.

Changing technology

- 2.20 Technology may allow us to overcome some of the challenges associated with water management – for example, more efficient use of water and mitigating water pollution. It may also lead to new ways of delivering water-related services to communities.
- 2.21 The *National Science Challenge: Our Land and Water – Toitū te Whenua, Toiora te Wai*, was launched in January 2016 with government investment of about \$97 million over 10 years. The objective of the challenge is to enhance primary sector production and productivity while maintaining and improving New Zealand’s land and water quality for future generations. The research includes a focus on innovative and resilient use of land and water.

Changing community expectations

- 2.22 The public sector needs to consider and respond to changing community expectations about the state of our environment and water-related services, when developing regulation and spending taxpayer and ratepayer funds. The sector is ultimately accountable to New Zealanders.
-
- ... we need to ensure that when we set goals for how clean we want our freshwater resources to be, that we are also talking about the cost to our communities of doing this, the economic trade-offs that might need to be made, and how we pay for it.*
- 2.23 In a 2016 survey, the state of New Zealand’s water resources was identified as the most important environmental issue facing New Zealand. Many of the respondents (59%) considered that farming was the main cause of damage to our freshwater resources, followed by sewage and stormwater (43.5%).¹⁰
-
- Local Government New Zealand media release, 14 March 2017*
-
- 2.24 There is some public opposition to water-bottling companies profiting from a natural resource that they do not have to pay for, and similar opposition to water use for irrigators. Asking whether people should pay for the water, instead of or as well as paying for its supply, can raise the more difficult question of who owns water and who should benefit from any pricing regime.

10 Hughey, K. F. D., Kerr, G. N., and Cullen, R (2016), *Public Perceptions of New Zealand’s Environment*, EOS Ecology, Christchurch, pages iii and 15.

Changing regulatory setting

- 2.27 The regulatory framework to manage our water resources and deliver three waters services has changed and is continuing to change in response to environmental, economic, social, and cultural conditions. The Government has started a review of how to improve management of the three waters to better support New Zealand's prosperity, health, safety, and environment.¹¹ Reviews of the contamination in 2016 of Havelock North's drinking water and the Edgcumbe flood event in 2017 could also lead to regulatory reform. The Government amended the National Policy Statement for Freshwater Management in August 2017 as part of the *Clean Water Package 2017* (see paragraph 4.33).
- 2.28 A significant level of responsibility for implementing regulation is devolved from central to local government. For example, regional councils are responsible for giving effect to the National Policy Statement for Freshwater Management through their regional planning documents, while city and district councils are responsible for ensuring that delivery of three waters services meets environmental standards. Consequently, local government must respond to any regulatory changes to the water management system.
- 2.29 Although we will not comment on policy or second-guess the science that supports water management, we have been mindful of regulatory change as we determined the shape of our work programme and identified the themes that we want to explore through our work.

What themes will we explore?

3.1 There are many strongly held and often conflicting opinions about how water resources should be managed. Water is also a broad topic, with many angles, issues, and risks that we could look into. The topics we have chosen – drinking water, freshwater, stormwater, and the marine environment – will enable us to explore themes that fall within our mandate and areas of expertise:

He waka eke noa

- the role of information in water management;
- innovative approaches that organisations are using and examples of good practice;
- how organisations balance competing interests and priorities;
- how organisations make investment decisions;
- how organisations work together and with others;
- how organisations work with iwi/Māori; and
- the capacity and capability of the public sector to address water management challenges.

The role of information in water management

3.2 Good management and use of information is essential to providing effective and efficient public services. Information held by organisations can be used to improve service delivery, to support evidence-based policy development and decision-making, and to accurately measure performance and effectiveness.

Overall, the community expects its water management and services to be effective, efficient, collaborative, democratically controlled, and oriented toward serving the national interest.

3.3 Having good information is critical for managing risk, for making decisions about what to invest in, to make the costs and benefits of policy choices and trade-offs explicit, and to enable accurate and timely performance reporting. Good information depends on collecting the right data (and determining the right data to collect), which in turn depends on having the right questions to answer.

Governance of Water: A proposal from the Turnbull Group, 2009, page 5

3.4 There are gaps in the understanding of New Zealand's water resources, including the health of those resources and what is having an adverse effect on them. For

example, the report *Our fresh water 2017*¹² has identified gaps in New Zealand's understanding of freshwater resources. The report *Our Marine Environment 2016*, also published under the Environmental Reporting Act 2015, included similar findings about gaps in national data about the marine environment.

- 3.5 Similarly, local authorities have variable understanding of the three waters assets.
- 3.6 There are good examples of progress in filling these gaps – for example, the Land, Air, Water Aotearoa (LAWA) website displays water quality data collected by regional councils at more than 1100 sites throughout New Zealand. LAWA is a collaborative effort between regional councils, the Cawthron Institute (an independent science organisation), and the Ministry for the Environment, with support from Massey University and the Tindall Foundation.
- 3.7 We are interested in understanding how organisations are using information to identify risk, prioritise activities, make investment decisions, and monitor and report on performance in water management.

Innovation and good practice

- 3.8 We are interested in identifying where innovative approaches are used to address water management challenges and the activities of organisations that are considered to be examples of good practice. For example, we might see:
- useful non-regulatory and cost-effective approaches; and
 - practical actions that are making a positive difference to how water resources are managed.

Balancing competing interests and priorities

- 3.9 Our water work will consider how organisations make decisions to balance competing interests and priorities.
- 3.10 Both central and local government must balance competing interests when setting strategies and policy, developing regulation, and in deciding how best to implement those strategies, policies, and regulations. They must strike a balance between protecting and preserving resources and meeting the needs of current and future generations – the recently enacted “swimmability” targets are an example of this aim.
- 3.11 There is no single organisation accountable for managing water in New Zealand. Striking a balance is particularly challenging when roles and responsibilities are spread between organisations and each organisation has its own statutory mandate.

¹² Published by the Ministry for the Environment and Statistics New Zealand under the Environmental Reporting Act 2015.

Making decisions about investment

- 3.12 Organisations have important decisions to make about how they will use ratepayer and taxpayer funds in managing water resources and delivering three waters services.
- 3.13 In a 2014 report, we noted:
*Making good choices about where we spend our scarce resources is critical to ensuring that the public sector delivers the right services. Prioritising is vital in making good choices.*¹³
- 3.14 Increasing regulatory standards, changing demographics and community expectations, climate change, and affordability issues are some of the matters that organisations need to consider when deciding what to invest in, where, and when.
- 3.15 Organisations will often need to make trade-offs when making investment decisions and need to consider when best to invest. Councils make their investment decisions in consultation with their communities through the long-term planning process under the Local Government Act 2002.
- 3.16 Parliament and the public expect to see a return on the investment made – whether that be improvements in freshwater quality, protecting people from flooding, or making sure that towns and cities have the infrastructure needed to support a growing population.
- 3.17 We are interested in how organisations make their investment decisions and consider the benefits from that investment – for example, what information do they use, how do they juggle different priorities, how do they communicate the issues, choices, and implications of a proposed investment, and how do they measure the return from their investment?

¹³ Office of the Auditor-General (2014), *Reflections from our audits: Our future needs – is the public sector ready?*, Wellington, paragraph 3.4.

How organisations work together and with others

- 3.18 Organisations in both central and local government play critical roles as policy makers and regulators in managing water and delivering water-related services. There are many examples of organisations working collaboratively in carrying out these roles.
- 3.19 We made the following observation in a 2017 report:
- The way central and local government work together to consider the challenges and make decisions is likely to become more rather than less important. Local authorities will need to not only engage effectively with their communities but also with central government about the options, costs, and associated trade-offs.*¹⁴
- 3.20 Our work will consider how organisations are engaging with each other and their communities (including iwi/hapū) in setting strategic priorities and making investment decisions regarding water management, how they are working together in carrying out their roles and responsibilities and in delivering programmes of work, and what regulatory and non-regulatory approaches they are using.

Working with iwi/Māori

- 3.21 Many organisations have obligations under legislation to consider the Crown/Māori relationship under the Treaty of Waitangi when carrying out their water management roles and responsibilities.
- 3.22 As well as these statutory obligations, some Treaty settlements include co-management and co-governance arrangements between iwi/Māori and other organisations – for example, the Waikato-Tainui settlement and the Te Arawa Lakes settlement. There are likely to be more co-management and co-governance arrangements in the future.
- 3.23 How organisations give effect to the relationship with iwi/Māori will vary according to the legislative requirements, the existing relationship between iwi and the organisation, the issues they are managing, and the broader community context.
- 3.24 We will explore how well organisations are meeting their obligations as they carry out their water management roles and responsibilities.

Our wai (water) is an inseparable part of our whakapapa and our identity, and is a fundamental part of what drives our very existence. The future health and wellbeing of our waters are a matter of utmost importance to all iwi, as well as all New Zealanders.

Iwi Chairs Forum, Freshwater kaupapa

¹⁴ Office of the Auditor-General (2017), *Reflections from our audits: Investment and asset management*, Wellington, page 18.

Capacity and capability to address the challenges

- 3.25 We will consider the public sector's capacity and capability to address water management challenges, and what actions are being taken to address any gaps and barriers.
- 3.26 We plan to assess:
- Whether the local government sector has the resources and tools it needs to meet regulatory requirements set by central government – are organisations able to effectively and efficiently carry out their water management and service delivery roles and responsibilities?
 - The role that central government plays in supporting local government in managing water and delivering three waters services – for example, through regulatory and non-regulatory measures, guidance on implementing government policy, provision of funding, and research.

4

Our water management work programme

4.1 Starting in 2017/18, we will be looking at how well a range of organisations are carrying out their water management roles and responsibilities. We chose the following topics because they enable us to discuss the full range of themes outlined in Part 3 – which relate to some of the most significant water management challenges facing New Zealand.



Topic	What will we look at?	What themes can we explore through this work?	What organisations will be involved?
Drinking water			
Protecting drinking-water sources	How well local authorities are protecting drinking-water supply sources to ensure that there is enough safe and reliable drinking water, now and in the future.	Risk management Role of information How organisations work together	Selection of councils Ministry for the Environment Ministry of Health
Optimising demand and supply	How local authorities develop strategies to balance demand for and supply of drinking water to ensure adequacy of drinking-water supply on a financially sustainable basis, now and in the future.	Role of information Innovation and good practice Making decisions about investment	Selection of councils
Freshwater			
Quality management	The progress Waikato, Taranaki, Horizons, and Southland Regional Councils have made in managing impacts to their freshwater quality since our last audit in 2011.	Role of information Balancing competing interests and priorities How organisations work together Working with iwi/Māori Capability and capacity of local authorities to address challenges	Waikato, Taranaki, Horizons, and Southland Regional Councils



Note: The freshwater icon is a modified version of the creek icon by Dan Hetteix (United States of America), see thenounproject.com.

Topic	What will we look at?	What themes can we explore through this work?	What organisations will be involved?
Clean-up spending	How the Ministry for the Environment selects and monitors the performance of the organisations that it funds to improve and recover water quality. Whether Crown funding delivers measurable and sustainable improvements in water quality at a reasonable cost.	Investment decision-making Role of information How organisations work together	Ministry for the Environment Lake Taupo Protection Trust Waikato River Authority Potentially, MPI Irrigation Acceleration Fund And others
Monitoring irrigation	How effective the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 have been in creating opportunities for better and more efficient use of water.	Role of information Innovation and good practice	Marlborough District Council Canterbury Regional Council Northland Regional Council Hawke's Bay Regional Council Bay of Plenty Regional Council
Stormwater			
Reducing the effects of flooding	How well local authorities are managing their stormwater networks to reduce flood risk, with a focus on setting attainable and affordable levels of service in consultation with their communities.	Role of information Making decisions about investment How organisations work together Capability and capacity	Selection of councils



Note: The stormwater icon is a modified version of the flood icon by Iconathon (United States of America), see thenounproject.com.



Topic	What will we look at?	What themes can we explore through this work?	What organisations will be involved?
Marine environment			
Reserve proposals	The decision-making processes for considering whether to designate marine reserve status for a body of water.	Innovation and good practice Balancing competing interests and priorities How organisations work together Working with iwi/Māori	Department of Conservation Ministry for Primary Industries Ministry for the Environment
Spatial plan for the Hauraki Gulf	How one multi-sector group is trying to balance competing water issues through taking a place-based approach to addressing the pressures on an area of national significance – the Hauraki Gulf.	Balancing competing interests and priorities How organisations work together Working with iwi/Māori	Ministry for Primary Industries Department of Conservation Auckland Council, Hauraki Gulf Forum, Waikato Regional Council

Note: The marine environment icon is a modified version of the coral icon by Freepik, see flaticon.com.

Details of our work programme

- 4.2 Under each section that follows, we provide a broad overview of the legislative framework and roles and responsibilities for water management.
- 4.3 Central government has roles and responsibilities for setting strategic priorities, developing policy and standards, enacting legislation, providing funding, conducting research, and monitoring and reporting on the activity of councils.
- 4.4 New Zealand has a decentralised system of environmental governance, meaning that most policies are implemented at the regional and local levels. Councils respond to and implement the frameworks set by central government by:
- establishing their own standards in keeping with Government regulation (through, for example, regional plans) to manage water use and activities that can affect water;
 - giving consent to different activities; and
 - monitoring and enforcing compliance with the standards they set and the consents they grant.

- 4.5 Councils are also responsible for delivering three waters services to their communities. Councils set the levels of service they aim to meet when delivering these services, in consultation with their communities, and they make investment decisions that are reflected in their 10-year long-term plans under the Local Government Act 2002.
- 4.6 Central and local government organisations gather information about water and its use, measure and report on their performance in carrying out these roles, and engage with the public in their decision-making processes.

Delivering a safe and reliable drinking-water supply

- 4.7 Four main Acts set the legislative framework for drinking-water supply – the Health Act 1956, the Local Government Act 2002, the Building Act 2004, and the Resource Management Act 1991.
- 4.8 New Zealand applies the internationally accepted “multiple barrier” approach to manage the risk of contamination in the water supply – this involves protecting the water source, treating the water taken, and ensuring that water does not get contaminated before reaching people’s taps.
- 4.9 The administration or implementation of legislation aimed at delivering safe drinking water is mainly carried out by the Ministry of Health, the Ministry for the Environment, councils, and district health boards.
- 4.10 The Ministry of Health is responsible for the regulation of public health, including the overview of drinking-water supplies, to ensure that the water from these supplies can be consumed without causing illness. The Ministry administers the drinking-water provisions of the Health Act 1956 and develops and administers the *Drinking-water Standards for New Zealand 2005 (revised 2008)* (the drinking-water standards) that set public health standards for drinking-water quality and criteria for checking the performance of water suppliers.
- 4.11 The Ministry for the Environment is responsible for the development and administration of the *National Environmental Standard for Sources of Human Drinking Water* (NES), a regulation under the Resource Management Act 1991. The NES requires regional councils to ensure that effects of activities on drinking-water sources are considered in decisions about resource consents and regional plans.
- 4.12 City and district councils are responsible for the supply of drinking water to a significant proportion of the country’s population. The Ministry of Health’s annual report on drinking-water quality finds about 3.8 million New Zealanders (out of a population of 4.7 million) are on networked water (including council, community,

and private water supplies).¹⁵ Councils take the water from source, treat it if need be to remove risks or contaminants, then distribute it to consumers through a reticulation system made up of pipes, water storage facilities (reservoirs), and other components up to the property boundary. Under the drinking-water standards, councils are expected to test the water regularly to show that it is safe.

- 4.13 In their capacity of drinking-water suppliers, councils are required to prepare a water safety plan for water supplies serving more than 500 people. The purpose of a water safety plan is to identify the public health risks associated with the drinking-water supply, identify the critical points on the supply, and identify mechanisms to both prevent risks arising and reduce or eliminate risks that do arise.
- 4.14 Some councils have contracted out the operational and maintenance services, while others have set up council-controlled organisations to manage water supply – Watercare Services Limited in Auckland and Wellington Water Limited (owned by Wellington City, Hutt City, Upper Hutt City, and Porirua City Councils, and Greater Wellington Regional Council).
- 4.15 District health boards ensure, through drinking-water assessors, that city and district councils are maintaining appropriate water quality. In a serious health risk situation, the Medical Officer of Health may serve a compliance order to require a water supplier to stop (or not start) doing anything that may create a health risk from the water supply.
- 4.16 The Ministry publishes, on its website, an annual report on the quality of drinking water, including compliance with the drinking water provisions of the Health Act 1956 and the drinking-water standards for New Zealand.
- 4.17 We will be carrying out two performance audits to look at different aspects of delivering a safe and reliable drinking-water supply:
- protecting the sources of drinking water; and
 - optimising drinking-water demand and supply.

Drinking water 1: Protecting the sources of drinking water

- 4.18 Having access to safe and reliable drinking water is core to human health and economic well-being. A good-quality drinking-water supply brings many direct and indirect benefits to communities and the country by helping to prevent the outbreak and spread of waterborne diseases.
- 4.19 Protecting the source water is possibly the most important step for effectively managing the risk of water supply contamination. This is because it reduces the contaminants that subsequent water treatment has to remove.

- 4.20 There are several organisations with a role in source protection. Regional councils ensure that the effects of activities on drinking water sources are considered in decisions on resource consents and regional plans in terms of the National Environmental Standard for Sources of Human Drinking Water (NES). The Ministry for the Environment is responsible for administering the NES, which are regulations made under the Resource Management Act 1991.¹⁶ The NES came into effect on 20 June 2008. The Ministry for the Environment developed guidance materials to support implementation of the NES (although one document is still in draft form), and has indicated its intention to conduct a review of the implementation and effectiveness of the NES in 2017/18.
- 4.21 We decided to focus on source protection because information about compliance with the drinking-water standards (see paragraph 4.10) is publicly and widely available through the Ministry of Health’s website and the website of Institute of Environmental Science and Research Limited. Councils also publish their water-supply monitoring and compliance information. Information about compliance with the NES is not as accessible and transparent.
- 4.22 This topic will enable us to consider councils’ approaches to risk management, the role of information in managing risk, and how organisations work together to achieve a shared outcome.

What will we look at?

- 4.23 We are interested in understanding how effective councils’ activities are in ensuring the protection of drinking-water supply sources. Our focus may include:
- regional councils’ consent decision-making and plan-making activities in relation to their compliance with the NES;
 - the Ministry for the Environment’s role in monitoring the implementation of the NES;
 - the practices used to protect the integrity of drinking-water sources; and
 - how well organisations are working together to ensure the effective protection of drinking water sources.

Drinking water 2: Optimising drinking-water demand and supply

- 4.24 Councils use a variety of tools and methods to balance demand for, and supply of, drinking water to ensure that they can deliver a safe water supply in a financially sustainable manner. Climate change and changing demographics will have an increasing influence on how councils achieve this balance, along with the need to deliver sustainable water supply services.

¹⁶ Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007.

- 4.25 Councils need to strike a balance between demand and supply, and identify the optimal approach to adopt, so that their communities are not investing too early or too late in new infrastructure.
- 4.26 In 2010, we reported on how well councils were planning to meet the forecast demand for drinking water. Our report was based on a performance audit of eight councils. We followed up this work in 2012, looking at the extent to which councils in general have responded to the recommendations in our 2010 report. We found that the main challenge was in providing security of supply for the years ahead.
- 4.27 Councils are required to prepare infrastructure strategies setting out how they will manage their infrastructure assets. In preparing these strategies, they are required to take into account the need to provide for the resilience of infrastructure assets by identifying and managing risks from natural hazards and making appropriate provision for those risks.
- 4.28 This work will allow us to consider how councils use information and make investment decisions. It will also enable us to talk about the importance of demand-management strategies to the timing of infrastructure reinvestment and any innovative approaches being applied in balancing demand and supply.

What will we look at?

- 4.29 We will look at how a selection of councils prepare their strategies to balance demand and supply of drinking water.
- 4.30 We will also consider how they are addressing resilience issues through their long-term planning processes.

Managing freshwater

- 4.31 Freshwater management responsibilities primarily fall on the Ministry for the Environment, which sets the policy and regulatory framework, and the regional councils that implement this framework. Other agencies involved are the Ministry for Primary Industries and the Ministry for Business, Innovation and Employment.
- 4.32 In 2011, the Minister for the Environment released the National Policy Statement for Freshwater Management, which directs regional councils, in consultation with their communities, to set objectives and limits to maintain or improve the quality of water in lakes, rivers, wetlands, and aquifers. This was updated in 2014 to introduce national standards for freshwater quality.
- 4.33 The latest government work programme to improve New Zealand freshwater management is the *Clean Water Package 2017* (the Clean Water Package), which

was consulted on from February to May 2017. The Clean Water Package proposed a national target of 90% of rivers and lakes swimmable by 2040, changes to the National Policy Statement for Freshwater Management, and criteria for the Freshwater Improvement Fund. Changes to the National Policy Statement for Freshwater Management were confirmed on 7 August 2017.

- 4.34 The National Policy Statement for Freshwater Management also now incorporates Te Mana o te Wai – an expression of the cultural significance of water:
- Te Mana o te Wai represents the innate relationship between te hauora o te wai (the health and mauri of water) and te hauora o te taiao (the health and mauri of the environment), and their ability to support each other, while sustaining te hauora o te tāngata (the health and mauri of the people).*
- 4.35 Together, the Ministry for the Environment and the Ministry for Primary Industries are responsible for co-leading the policy initiatives to deliver the Clean Water Package.
- 4.36 The Ministry for Primary Industries is responsible for administering the Irrigation Acceleration Fund, which provides government funds for irrigation schemes. The Ministry for Business, Innovation and Employment is responsible for administering the National Science Challenge, which includes research to enhance primary sector productivity to meet future demands while protecting water quality and recognising environmental constraints.
- 4.37 Two Crown Research Institutes – Institute of Environmental Science and Research Limited (ESR) and National Institute of Water and Atmospheric Research Limited (NIWA) – conduct research into freshwater. ESR specialises in science about people and communities, including improving the safety of freshwater and groundwater resources, while NIWA's role focuses on enhancing the economic value and sustainable management of New Zealand's environment.
- 4.38 Regional councils' primary roles and responsibilities in managing freshwater are under the Resource Management Act 1991, including implementing the National Policy Statement for Freshwater Management, through their regional planning documents, and giving consent for discharges to water and land, and water takes.
- 4.39 City and district councils are responsible for managing land use. They set the urban growth agenda by developing rules for where and what development can occur – the location and type of development affects waterways through, for example, sedimentation from earthworks and run-off from more hard surfaces and roads.

Freshwater 1: Progress since 2011 in managing the quality of freshwater

- 4.40 The quality of water in New Zealand's rivers and lakes is increasingly a cause of public concern. In 2011, we released an audit report on management of freshwater quality in four regions (Taranaki, Waikato, Manawatu-Wanganui, and Southland), identifying various shortcomings. Since then, the Government has introduced the National Policy Statement for Freshwater Management (see paragraph 4.32), which requires regional councils to establish objectives and limits for freshwater quality and quantity in line with community values.
- 4.41 This work will enable us to consider how organisations balance competing interests and priorities and work with others in addressing freshwater quality. The work will also allow us to look at the role of information and the capability and capacity of councils to address freshwater quality challenges.

What will we look at?

- 4.42 We will look at how well the four regional councils we audited in 2011 are managing their freshwater quality. Our work will revisit important aspects of our 2011 work, in the context of a new regulatory environment. It will also look at how regional councils have changed and adapted their management approaches since 2011, and identify any difficulties they might have encountered.

Freshwater 2: Spending on cleaning up significant waterways

- 4.43 Since 2000, several hundreds of millions of dollars of Crown funds have been spent on initiatives to improve and recover water quality in significant water bodies in New Zealand. This is a significant part of the Government's approach to managing freshwater. The Ministry for the Environment has been responsible for funding these initiatives either directly, or indirectly through other parties (such as regional councils, entities established as part of Treaty settlements, and community organisations), who then fund the providers of specific initiatives.
- 4.44 If the Ministry's procurement processes and/or the subsequent service delivery are sub-optimal, there is the potential for public funds allocated to improving or recovering water quality to be wasted, and for slower or ineffective improvements in water quality.
- 4.45 The work should be of interest beyond the environment sector, to any organisations involved in procurement/contract management/grant funding, especially where there is a time lag between funding and outcomes. We can also share any good practice we find.

What will we look at?

- 4.46 We will look at the Ministry for the Environment’s procurement, monitoring, contract management, relationship management, and reporting processes. This will involve reviewing monitoring and accountability reports on selected projects; discussions with project managers, governors, and funded organisations; and observations and reviews of new Freshwater Improvement Fund decision-making processes.
- 4.47 We are considering contrasting the approach taken to funding projects under the Irrigation Acceleration Fund.

Freshwater 3: Monitoring how water is used for irrigation

- 4.48 From 10 November 2016, all consented taking of water that happens at a rate of 5 litres each second or more is required to be measured and recorded – see the Resource Management (Measurement and Reporting of Water Takes) Regulations 2010. Theoretically, this should create a valuable data set to help manage water as a resource.
- 4.49 Reliable information and data is required for ensuring that the water resource is managed as effectively, efficiently, and fairly as possible, given its limited nature (at certain locations and times of the year) and the increasing demand for it.
- 4.50 An increase in the use of irrigation, the significant amount of freshwater allocated to irrigation, government investment in irrigation, and negative perceptions about the effects of irrigation on the environment were among our reasons for choosing this topic.
- 4.51 Current information about use appears patchy and fragmented between various irrigation schemes and regulatory agencies, without this information being unified for better decisions about allocation and investment. The decision to focus on metering is because measurement is fundamental to the management of resources.
- 4.52 Through our work on irrigation we will consider the role information plays and provide examples of innovation in the gathering and use of data in water management.

What will we look at?

- 4.53 We will look at how effective the implementation of water metering has been to create opportunities for better and more efficient use of water.

Managing stormwater networks

- 4.54 Stormwater networks collect and take to the shore or safely disperse the rainwater that runs off from private property, public reserves, and roads. The main function of a stormwater network is to protect people and property from flooding by transporting water through a piped network (the drainage network) and/or to designated overland flow paths (where the water is designed to go when the piped network cannot cope; for example, roads and parks).
- 4.55 The main Acts dealing with flood risk and stormwater management are the Resource Management Act 1991, the Local Government Act 2002, and the Building Act 2004.
- 4.56 Under the Resource Management Act 1991 and the Local Government Act 2002, councils set regional and local policies for managing flood risks and stormwater through their long-term plans, regional policy statements, regional plans, and district plans. That policy direction is implemented through asset and flood management plans and the provision of flood, river management, stormwater, and drainage infrastructure.
- 4.57 Three Acts (the Soil Conservation and Rivers Control Act 1941, the River Boards Act 1908, and the Land Drainage Act 1908) empower councils to address flooding and drainage issues through physical works, such as constructing stopbanks, maintaining and clearing channels, and draining land.
- 4.58 Land-use controls to reduce flood risk and the use of soil conservation practices, such as planting in erosion-prone catchments, are covered by the Resource Management Act 1991, the Soil Conservation and Rivers Control Act 1941, and the Building Act 2004.
- 4.59 Roles and responsibilities for flood risk management are divided:
- Central government focuses on assisting communities to prepare and recover from large events (civil defence), providing local government with the necessary powers, funding the science system, and providing weather forecasts and warnings.
 - Regional councils and city and district councils carry out the daily management and funding of flood risk management, in consultation with the local community. Regional councils are responsible for flood protection activities and catchment (river) management. City and district councils are responsible for land use management and the management of stormwater networks.

Stormwater 1: Managing stormwater networks to reduce the effects of flooding

- 4.60 Flooding is New Zealand’s most frequent natural hazard. Flooding creates significant economic, environmental, and social costs. Climate change and increasing urbanisation are expected to increase the risk of flooding in the years ahead.
- 4.61 Managing stormwater networks is important in managing the risk of flooding. However, the investment in these networks is typically lower than the investment councils make in their water supply and wastewater networks. Urban stormwater is often referred to as the “poor cousin” of the three waters.
- 4.62 We expect our work to be of interest to councils and the wider public sector, particularly any comments we might make about organisations’ roles in understanding and managing risk, how they make investment decisions, and how organisations work together. We will share examples of innovation and best practice, and identify any capability and capacity issues.

What will we look at?

- 4.63 We are interested in understanding the approaches that councils use to establish attainable and affordable levels of service to protect people and property from flooding. We will focus on urban stormwater network management.

Managing the marine environment

- 4.64 Our marine environment comprises the territorial sea from the shore out to 12 nautical miles, the Exclusive Economic Zone (EEZ) from 12 to 200 nautical miles from the shore, and the continental shelf (the area where New Zealand’s submerged landmass extends beyond the EEZ). New Zealand has one of the largest EEZ areas in the world, covering more than four million square kilometres. This is more than 20 times the size of New Zealand.
- 4.65 The Ministry for the Environment is responsible for developing environmental policy and administering the legislation and regulations applying to the EEZ and territorial sea. This includes the Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 and the Resource Management Act 1991.
- 4.66 Under the Resource Management Act 1991, the Department of Conservation is responsible for administering the New Zealand Coastal Policy Statement, which promotes the sustainable management of the natural and physical resources of the foreshore, seabed, coastal water, and airspace from the high tide mark to the 12 nautical mile limit. The Department of Conservation is responsible for New

Zealand's marine reserves and marine mammals. Marine protected areas are an important tool in ensuring that marine biodiversity is maintained in a healthy state.

- 4.67 Regional councils are responsible under the Resource Management Act 1991 for managing the effects of activities on the environment in territorial waters. The Environmental Protection Authority is responsible for managing the effects of specified restricted activities in the EEZ and the continental shelf.
- 4.68 The Ministry for Primary Industries is responsible for the management of fisheries and aquaculture and biosecurity. The Ministry for Primary Industries and the Department of Conservation have joint responsibility for developing and implementing the Marine Protected Areas Policy. The Government consulted on a Marine Protected Areas Bill in January-March 2016 but this has not progressed into law.
- 4.69 We will carry out two performance audits that will explore how central and local government manage competing priorities and interests in the marine environment:
- how proposals for marine reserves are considered; and
 - marine spatial planning in the Hauraki Gulf.

Marine environment 1: How proposals for marine reserves are considered

- 4.70 Although the public generally supports the concept of marine protection, people can oppose specific marine reserve proposals when they consider that their interests or perceived rights will be adversely affected.
- 4.71 The Government released a Marine Protected Areas policy in 2005 that provides the main framework for establishing marine reserves. The framework was designed to be inclusive and transparent. The policy led to the creation of regionally based collaborative groups responsible for considering marine protection in their region, including the possibility of proposing marine reserves.
- 4.72 The objective of the Marine Protected Areas policy is to protect marine biodiversity by establishing a network of protected areas that is comprehensive and representative of New Zealand's marine habitats and ecosystems. Marine reserves are considered a core tool in the development of that representative network.
- 4.73 The decision about whether a marine reserve proposal is accepted is, in effect, prioritising access to, and the use of, a particular body of water and its resources. Consequently, the decision-making process for designating marine reserves needs to consider various rights and perspectives on what can be a contentious matter.

- 4.74 Our work will focus on how the public sector balances competing priorities and interests and works with others.

What will we look at?

- 4.75 We will consider the processes used to consider marine reserve proposals that led to recommendations to Ministers about whether to designate marine reserve status to a body of water.

Marine environment 2: Marine spatial planning for the Hauraki Gulf

- 4.76 We are interested in understanding how competing interests are balanced in the marine environment. We will use the case study of marine spatial planning in the Hauraki Gulf to explore these issues.

- 4.77 The organisations involved in the marine spatial planning are the Ministry for Primary Industries and the Department of Conservation, along with Auckland Council, Waikato Regional Council, and the Hauraki Gulf Forum.

What will we look at?

- 4.78 We are interested in the process to develop and implement this first attempt at a marine spatial plan in New Zealand. We will highlight any lessons learnt for balancing competing interests in the coastal marine environment, such as aquaculture, fishing, water quality, marine protected areas, cultural values, and recreation.

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Office of the Auditor-General
PO Box 3928, Wellington 6140

Telephone: (04) 917 1500
Facsimile: (04) 917 1549

Email: reports@oag.govt.nz
Website: www.oag.govt.nz