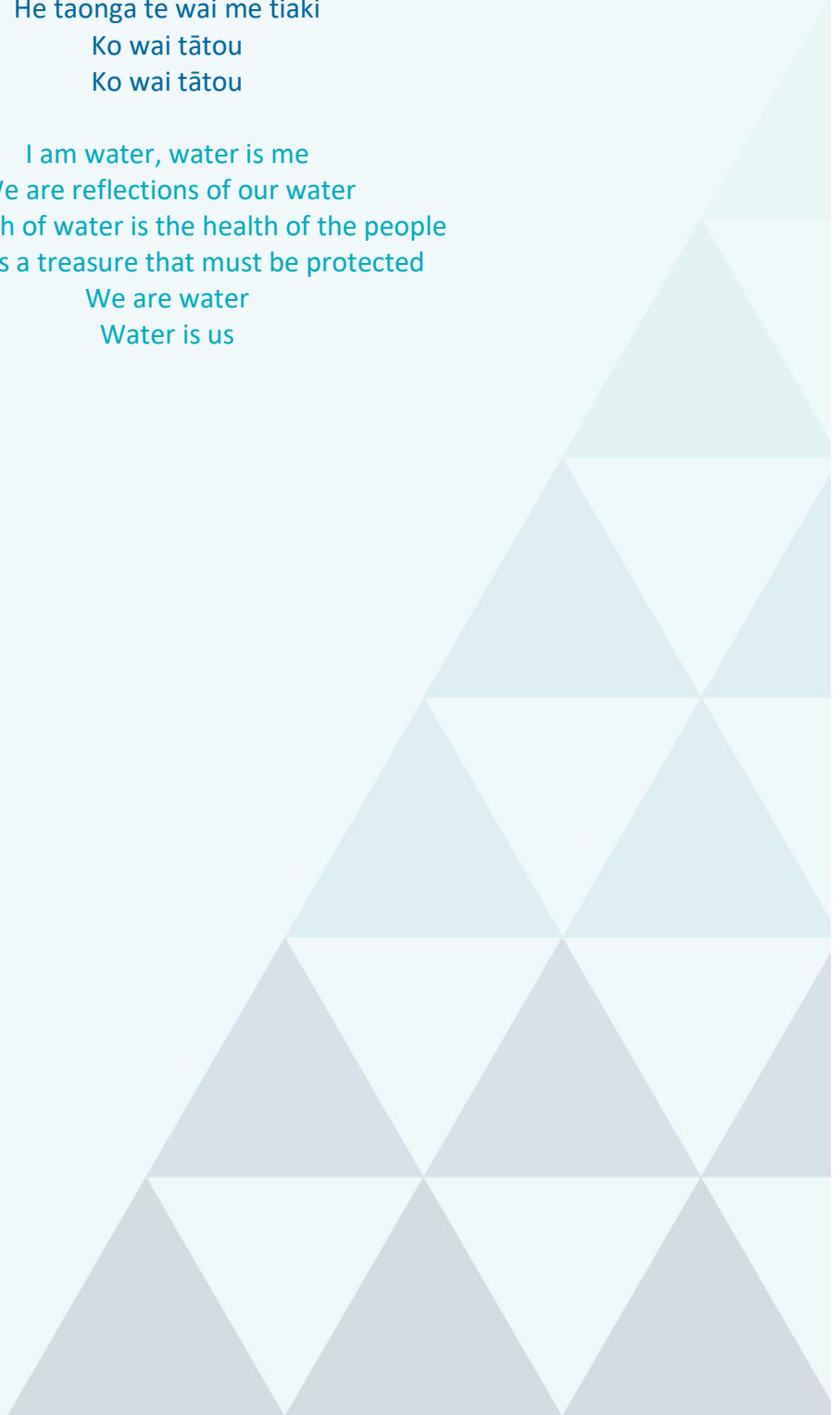# Discussion document:

Drinking Water and Wastewater Network Environmental Performance

TAUMATA AROWAI

Te Whakatauākī a Taumata Arowai

Ko te wai ahau
Ko ahau te wai
He whakaaturanga tātou nō te wai
Ko te ora te wai ko te ora o te tangata
He taonga te wai me tiaki
Ko wai tātou
Ko wai tātou

I am water, water is me
We are reflections of our water
The health of water is the health of the people
Water is a treasure that must be protected
We are water
Water is us

Contents

1. Introduction

The Water Services Act 2021 (the Act) includes requirements to monitor and report on the environmental performance of drinking water, wastewater, and stormwater networks and their operators (Part 3, Subpart 8).

These requirements are designed to provide greater transparency about the performance of networks and the impacts they have on public health and the environment. They will contribute to the continuous improvement of the quality of water services in Aotearoa New Zealand.

These requirements also complement the general functions and objectives of Taumata Arowai under the Taumata Arowai–the Water Services Regulator Act 2020 (the Regulator Act), including to give effect to Te Mana o te Wai.

These requirements only apply to networks and network operators. These terms have very specific definitions under the Act that mean only drinking water, wastewater, and urban stormwater networks owned by, or operated on behalf of, councils, their council-controlled organisations, Government departments or the New Zealand Defence Force.

The provisions of the Act allow Taumata Arowai to make:
• environmental performance measures for networks
• environmental performance targets for networks
• environmental performance standards for wastewater networks.

Environmental performance measures, targets, and standards are being introduced in tranches. In early 2022, Taumata Arowai consulted on a three-year phased approach to introduce drinking water network environmental performance measures (drinking water measures). The first year of drinking water measures were introduced on 1 July 2022. Details of these measures, including definitions can be found on [our website](#).

This consultation document provides more detail on proposals for the second year of drinking water measures, including suggestions from submissions earlier in the year. We intend to introduce the second year of drinking water measures in early 2023 and they will become mandatory from 1 July 2023.

This discussion document also outlines the approach to introduce wastewater network environmental performance measures (wastewater measures). We plan to introduce wastewater measures over three years, with the first year of measures based on the Water New Zealand National Performance Review (NPR) approach. We intend to introduce the first year of wastewater measures at the same time as the second year of drinking water measures (1 July 2023).

We're consulting on the proposed environmental performance measures for drinking water and wastewater networks now to test our ideas and to provide time for network operators to develop the capability to collect data, where they do not already do so.

We are interested in your feedback on all aspects covered under this discussion document, but in particular we want to hear your thoughts on the refined year two drinking water measures and all the proposed wastewater measures.

How does the environmental performance of networks affect communities?

The proposed measures are being introduced to help identify and publicise the impact of networks on the environment and the health of our people. Communities are affected because the performance of networks directly impacts the environment and public health. Networks impact the quality of drinking water, the resilience of our freshwater sources, and the safe removal and disposal of the wastewater and stormwater generated by our communities. We pay for water services through rates and/or water bills (with costs often passed through to occupiers) and therefore we all have an interest in how that money is spent.

Environmental performance reporting will benefit network operators by building a clear picture of how networks are performing. This can be used as an evidence base for decision-making, for example, to guide investment and support resource consent applications.

Taking a holistic and integrated view of the management of wai (water) as articulated through the concept of Te Mana o te Wai[1] is crucial. Wai is an essential resource that is critical to life and connects us all. Te Mana o te Wai draws on a Te Ao Māori perspective to recognise the whole-of-system approach to protecting wai, from ki uta ki tai (mountains to sea).

Our networks can have significant impacts on our lives and the state of our environment from source (where we abstract water to drink and use in our homes and businesses) to discharge (where we dispose of our wastewater and stormwater and drinking water by-products). The diagram below depicts this cycle and shows how everything is interconnected.

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[1] We refer to the definition set out in the National Policy Statement for Freshwater Management (2020), which is applied in section 14 of the Act. The high-level description of the concept is:

Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

Figure 1: The urban water cycle (Credit: Water New Zealand).

What mechanisms will be used to monitor and report on the environmental performance of networks?

Measures and targets are both important for monitoring the environmental performance of networks. Measures will tell us how networks are performing (now and over time). Targets, which will be introduced at a later stage, will set out how we want networks to perform in the future.

Standards are intended to improve national consistency for the consenting and operation of wastewater networks. Standards will also be developed later once further work has been undertaken to determine the appropriate priorities and form of the standards. The data we receive on any measures, targets and standards will be summarised in a public-facing Network Environmental Performance Annual Report (the Network Report) that we will be required to publish on an annual basis from 2023/24. The Network Report will also contain examples of best practice, specific risks or concerns that relate to network performance or practices, and comparisons of how networks across the country are performing.

Tikanga

Taumata Arowai tikanga define our way of working and what people can expect from us in terms of our behaviour and approach. Our tikanga are based on the guiding principles of Te Mana o te Wai.

Kāwanatanga – we will model positive partnerships and behaviours in our relationships.

Kaitiakitanga – we will protect the health of water as it applies to our functions, powers, and duties.

Manaakitanga – we will act to support a mana-enhancing way to achieve long-term intergenerational sustainability.

The environmental performance measures in this document and the consultation questions have been developed with these principles in mind.

The guiding whakataukī for Taumata Arowai are:

Karangahia ngā ope | Be the voice of welcome

Taumata Arowai is actively engaging with network operators and other relevant stakeholders to develop the best possible drinking water and wastewater environmental performance measures and we welcome this feedback.

Whāngaia te iwi | Sustain the tangata

Network environmental performance measures are intended to help ensure the sustainability of networks and that environmental impacts are minimised such that the health of the environment is preserved or even improved for future generations.

Ka hoki kōmuri ngā whakairo kia anga whakamua te titiro | Turn our minds to the past to determine our way forward

Environmental performance measures will encourage network operators to review key data at least yearly and better plan. Likewise, the receipt of environmental performance data will allow Taumata Arowai to see how network operators have performed in the last year and to identify issues that need to be focussed on.

2. What does 'environmental performance' mean?

During the drinking water network environmental performance measures consultation at the beginning of the year we learnt there is a perception that the scope of Taumata Arowai is limited to public health effects from drinking water.

The Regulator Act and the Act set out a clear oversight function for Taumata Arowai in relation to the environmental performance of drinking water, wastewater, and stormwater networks. Appendix 1 provides a summary of the relevant objectives and functions set out in the Regulator Act and the relevant statements of statutory purpose in the Act and describes how we consider these sections relate to the development of environmental performance measures. These parts of our Acts contributed to the matters we considered when determining the scope of the measures.

'Environmental performance' is not defined in the Act. However, through consultation in early 2022 we developed a definition that reflects the purpose and intent of relevant provisions in the Act and approaches taken in other relevant pieces of legislation. Following consultation, we further refined and finalised this definition. The final definition is provided below and can also be found in the Drinking Water Network Environmental Performance Measures and Guidance Material document on our website.

> **Environmental performance** relates to the effects of water services networks – including the operation of infrastructure and associated processes – on the environment. In this context, 'environment' takes its meaning from the definition of that term in the Resource Management Act 1991. Environmental performance consequently includes consideration of a network's effects on:
>
> (a)   Ecosystems;
>
> (b)   Natural and physical resources, including their innate mauri and mana;
>
> (c)   People and communities, including the ability of mana whenua to exercise kaitiakitanga; and
>
> (d)   Social, economic, aesthetic, and cultural conditions that affect (a) to (c), including mātauranga Māori and tikanga Māori.

When developing the definition of environmental performance, we started with the definition of 'environment' under the Resource Management Act 1991 (the RMA). This was considered an appropriate starting point due to the extent to which the Act interacts with the RMA.

As noted in the Government Inquiry into Havelock North Drinking Water, there are several interactions between matters covered by the RMA and drinking water safety. As a result, the Act was drafted to 'dovetail' with the RMA. To illustrate, the Act amended the RMA to require consenting authorities to consider the actual or potential impacts on drinking water supplies and, under the Act, drinking water suppliers must consider any values identified by local authorities under the National Policy Statement for Freshwater Management in their source water risk management plans. It is therefore reasonable to conclude that the definition of the environment in the RMA has some bearing when that term is used in the Act.

We also note that the definition of the environment in the RMA has been in use for many years and is generally accepted as embodying a contemporary understanding of what constitutes the environment.

Any environmental performance measures, targets or standards set by Taumata Arowai will be based on this definition, pending any legislative changes that may affect the RMA. We consider that this definition incorporates all parts of networks, from source (drinking water catchments and abstraction points) to discharge (the disposal of wastewater, stormwater, and drinking water treatment by-products).

As outlined in Appendix 1 one of the functions of Taumata Arowai under the Regulator Act is to "…identify and monitor matters that affect… environmental performance of drinking water, wastewater, and stormwater networks". Given the broad definition of the environment in the RMA and the consequential broad definition developed for environmental performance, we consider environmental performance measures can and should relate to impacts on the natural and built environment, public health, financial sustainability, resilience, reliability, and resource management.

How does environmental performance relate to Te Mana o te Wai?

Section 14(2) of the Act requires that Taumata Arowai gives effect to Te Mana o te Wai when exercising our functions, powers, and duties under the Act, to the extent that it applies to them.

Te Mana o te Wai introduces a hierarchy of obligations. The first is the health and well-being of wai. The second is the health and well-being of people. The third is the ability of people and communities to provide for their social, economic, and cultural well-being.

The National Policy Statement for Freshwater Management sets out the following six principles for implementing Te Mana o te Wai.

1. **Mana whakahaere**: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect and sustain the health and well-being of, and their relationship with, freshwater.
2. **Kaitiakitanga**: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations.
3. **Manaakitanga**: the process by which tangata whenua show respect, generosity, and care for freshwater and for others.
4. **Governance:** the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and in the future.
5. **Stewardship:** the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations.
6. **Care and respect:** the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

We are still refining our approach for giving effect to Te Mana o te Wai through the environmental performance measures and annual reporting. We recognise that the measures already introduced, and the measures proposed in this document largely represent a western world view.

We have commissioned a separate piece of work on how the measures should be explored regarding Te Mana o te Wai and what key considerations need to be taken into account when designing Te Ao Māori informed measures and associated processes.

It is important that we take the time to get this right as the measures we incorporate for a Te Ao Māori perspective will require a shift in mindset and a change in approach from the way data has been collected and analysed in the past. We intend to provide an opportunity for those who are interested to provide comment on these Te Ao Māori-derived measures early in 2023.

We are still interested in hearing your thoughts on how we may consider and implement Te Mana o te Wai, te Tiriti o Waitangi and Te Ao Māori perspectives through this consultation period. We also ask that you let us know if you wish to be involved in the consultation of these measures so we can ensure that you receive all further communications.

Ultimately, we are aiming to incorporate all the measures we will be developing into one set that provides a detailed picture of the environmental performance of our networks from a bicultural perspective.

3. Who will the new requirements apply to and how will they be used?

The new requirements only apply to networks and network operators. A network operator (including a 'drinking water network operator' and a 'wastewater network operator') is defined in the Act as[2]:

- local authorities, council-controlled organisations, or subsidiaries of council-controlled organisations
- Government departments (for example, the Department of Conservation or the Ministry of Education)
- the New Zealand Defence Force.

This means that the new requirements only apply to drinking water, wastewater, and urban stormwater networks owned by, or operated on behalf of councils or government departments/the New Zealand Defence Force. It is anticipated that once the Water Services Entities proposed in the Water Services Entities Bill have been stood up the requirements to report against the performance measures will transfer from councils to the entities.

Which drinking water networks are captured?

The Drinking Water Network Environmental Performance Measures and Guidance Material document sets out classes of drinking water network operators, with different reporting requirements for each class of operator.

Any drinking water network that supplies a peak population of less than 100 people (including usual consumer numbers) or where the source of the network is from rainwater collection tanks only, are excluded from the reporting requirements.

Which wastewater networks are captured?

The Act defines a wastewater network as the infrastructure and processes that are used to collect, store, transmit through reticulation, treat, or discharge wastewater that are operated by, or on behalf of a wastewater network operator. This means the definition of a wastewater network is very broad and captures small wastewater systems, such as on-site wastewater systems (where they are operated by a network operator such as a council).

We want to ensure that our focus remains on those networks which are likely to have the greatest environmental impact. We also want to ensure that the regulatory approach is proportionate to the risk posed by each network. For this reason, we are proposing that the wastewater measures will apply, in the first instance, to wastewater treatment plants and their associated networks only.

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[2] Sections 5 and 140 of the Act.

To exclude any wastewater networks that do not include a wastewater treatment plant, we need to define the term 'wastewater treatment plant'. We have proposed a preliminary definition below and are interested in feedback regarding this definition and any refinements which would be appropriate. We are particularly interested in views on whether the definition below is clear enough to exclude on-site wastewater treatment systems and where wastewater is not piped to another property for treatment or discharge.

> **Wastewater treatment plants** are facilities where centralised treatment of wastewater received occurs, in which physical, biological and/or chemical processes are employed to recover the used water for release to the receiving environment, land or water, or reuse. Typical treatment processes comprise ponds, reactor tanks or package systems to remove contaminants. Some of these facilities are additionally designed to provide resource recovery from the solids component of wastewater.

How will the information provided to Taumata Arowai benefit network operators and communities?

Taumata Arowai will collate and publish the data provided by network operators annually. We will make the resulting reports available to the public. By comparing metrics such as leakage rates, the long-term reliability of water sources, overflows and asset condition, these reports will be a useful tool to understand how networks across the country are performing and transparency around where investment may be needed.

Environmental performance reporting will be useful for network operators as an evidence base for investment decisions. The Network Report will provide examples of environmental performance best practice and specific risks or concerns that relate to network performance and practice.

Reporting will also help to build a clear picture of the state of New Zealand's water assets. Over time, we will also set targets to improve network performance and drive better environmental outcomes. These targets may also reflect broader Government commitments and recommendations, such as those set by the He Pou a Rangi, the Climate Change Commission.

4. Our proposed approach: outcomes and measures

Following consultation in early 2022 we introduced five outcomes under which all environmental performance measures will be grouped. These five outcomes will be applied across all three waters and will also apply to the urban stormwater measures when those are introduced in the future.

Our five outcomes are as follows:

1. **Environmental and public health is protected**

   For example, is it safe to swim in my local river? Is my local drinking water treatment plant reducing its carbon footprint?

2. **Services are reliable**

   For example, what is the condition of the pipes in my local area? Has my network operator considered the effect of population growth on water demand or wastewater flows?

3. **Resources are used efficiently**

   For example, how much water does the average household in my area use? How much water is lost from leaking pipes before it even gets to my house? Does any wastewater in my area get reused?

4. **Services are resilient**

   For example, has my network operator planned for a natural disaster? How long will I not have access to clean drinking water or flushing toilets if one occurs?

5. **Services are economically sustainable**

   For example, how much is my network operator borrowing? Does the revenue they receive cover the costs of managing the network?

We delayed the introduction of economic measures by a year and are now proposing new economic measures to be introduced in the year two drinking water and wastewater measures.

We recognise that the economic performance of a network affects its ability to meet its public and environmental health obligations. For this reason, we have included economic performance measures. We recognise that some of the measures may overlap with the role of the proposed economic regulator. We will continue to work closely with the relevant agencies to ensure we are collecting this information in the most efficient manner and without unnecessary duplication or overlap.

With growing populations and climate change, the demand and pressure on existing water infrastructure is likely to increase. For this reason, measures relating to the efficiency of networks will be important. Likewise, the state of preparedness for natural disasters is relevant, as poorly performing infrastructure and network failure directly impacts the wellbeing of communities.

Drinking water measures

We have already consulted on our proposed three-year approach to phasing in drinking water measures. For this reason, in this discussion document we focus only on the year two drinking water measures, noting that the year one drinking water measures became mandatory on 1 July 2022. We intend to consult on the detail of the year three drinking water measures next year.

Table One summarises the proposed year two drinking water measures, these are in addition to the year one measures, which must continue to be reported against. The data we are proposing to collect under each of those measures is summarised in Appendix 2.

Table One: Year two drinking water environmental performance measures

Outcomes	Performance Measure
Environmental and public health is protected	Drinking water treatment by-products
	Fish passage and screening
	Resource consent compliance
Services are reliable	System interruptions
	Water pressure
Resources are used efficiently	Use of water resources
	Alternative water use
Services are resilient	Disaster response planning and preparedness
	Water security
	Water restrictions
Services are economically sustainable	Expenditure
	Forecast expenditure
	Revenue

Wastewater measures

We are proposing to follow the same format for the introduction of wastewater measures as we have followed for the drinking water measures. We have grouped the wastewater measures under the five outcomes in Table Two below. Some of the measures will contribute to more than one outcome, so at this stage we have grouped them with the outcome that we consider is most applicable or that has the strongest link.

The table below provides an indication of where we are heading. We understand that it will take time for network operators to develop the capability, systems, and processes to collect all the applicable data. We also understand that some of the issues covered by the measures may not currently be front of mind for all network operators.

However, we expect that over time all network operators should be able to report on this information as part of their risk and asset management system. For this reason, we are introducing the wastewater measures in three phases based on when we want network operators to start providing the data required. We are starting with those measures that most councils already collect data for (under the voluntary Water New Zealand NPR) and introducing later those measures that may require time to establish the systems and processes required.

For some of the measures we need to do more work to understand what data we will need to collect. The phased approach will allow for this. It will also give us time to consider how we can collect the data in a more consistent format.

Data collection will therefore be phased across the following three timeframes:
- From 1 July 2023
- From 1 July 2024
- From 1 July 2025

Note the table below indicates when data collection requirements will be introduced for each measure. For some measures progressively more detailed information will be requested each year. The information must continue to be collected in subsequent years, once introduced.

Table Two: Wastewater measures

Outcomes	Performance Measure	2023	2024	2025
Environmental and public health is protected	Wastewater network connections	✓		
	Resource consent compliance	✓	✓	✓
	Wastewater overflows	✓	✓	
	Inflow and infiltration	✓		
	Trade waste	✓		
	Fish ingress		✓	
	Environmental monitoring		✓	✓
Services are reliable	Fault attendance and resolution	✓		
	System interruptions	✓	✓	
	Asset condition	✓		
	Capacity to accommodate growth			✓
Resources are used efficiently	Energy efficiency	✓		
	Process emissions	✓		
	Biosolids	✓		
	Wastewater reuse		✓	
	Greenhouse gas emissions			✓
Services are resilient	Critical assets	✓		
	Return to service post disaster		✓	✓
	Climate change adaptation			✓
	Resilience to cyber threats/terrorist attack			✓

Outcomes	Performance Measure	2023	2024	2025
Services are economically sustainable	Expenditure		✓	
	Forecast expenditure		✓	
	Revenue		✓	
	Cost and revenue allocation		✓	

The tables in Appendix 3 contain a full set of wastewater measures, with corresponding timeframes and associated data. We expect the individual data requirements for measures with longer timeframes will continue to be refined.

We are interested in whether we have missed any measures or data which will help us assess the outcomes identified. We are interested in whether you think some of the data we are asking wastewater network operators to collect is unnecessary, or whether some of the measures and/or data has been included in the wrong time-period. We will use your feedback to inform the scope and phasing of measures.

We are also interested in how qualitative data can be used to build a richer picture of network environmental performance.

5. Next steps

Following public consultation, we will update the year two drinking water measures and year one wastewater measures and undertake targeted engagement to develop the detailed definitions which will set out how the information should be provided to us. We anticipate developing and publishing the next group of measures by the end of April 2023.

> We encourage you to have your say on the proposed measures and let us know if you wish to be involved in targeted consultation, both to refine the definitions for the measures and/or to participate in consultation relating to the Te Ao Māori-derived measures which are currently being developed.

We have included a list of all the questions we ask through our consultation platform in Appendix 4 of this document to help you prepare submissions. However, we ask that if possible, you use the consultation platform to make your submission as that makes it easier for us to analyse the submissions received.

We expect to begin work on year three drinking water measures and year two wastewater measures in the second half of 2023.

Links with other Government work

We're considering the links between this work and other Government (existing and planned) initiatives. In particular:

- **Three Waters reform:** the proposed stand-up of the four Water Services Entities will not change the role of Taumata Arowai, but it will have an impact on our key stakeholders. For this reason, it will be important for us to work with the National Transition Unit. The National Transition Unit has committed to working in a cohesive and joined-up manner with Taumata Arowai to minimise the impact on council operations during the regulatory and service reform process. We are aware that the National Transition Unit is working to develop levels of service which will include any measures produced by Taumata Arowai. We will continue to work with the National Transition Unit team to ensure we are as aligned as possible.

- **A future economic and consumer protection regulator for water:** in late-2021 the Ministry of Business, Innovation and Employment (MBIE) consulted on how economic regulation and consumer protection for the future three waters system should be designed. The intent is to introduce regulatory safeguards to ensure that consumers and communities receive efficient and affordable three waters services that meet the needs of current and future generations. There will be various interdependencies between our work and that of the new regulator so it will be important for us to work together to avoid duplication.

- **Resource management reform and freshwater planning processes:** we are engaging with the Ministry for the Environment to ensure we understand the impacts that may arise from the proposed changes to our resource management system and the implementation of the National Policy Statement for Freshwater Management.

We are also aware of other sources of network infrastructure, and state of the environment information. We have identified environmental data reporting sources that may overlap with our environmental performance work:

- **Te Waihanga, the Infrastructure Commission's Infrastructure Pipeline:** this pipeline incorporates information about three waters infrastructure including information collected as part of the NPR process.

- **Land, Air, Water Aotearoa (LAWA):** LAWA is a collaboration between regional councils which aims to connect New Zealanders with the environment by sharing environmental data and information. It provides a connection to our environment by sharing environmental data and information, including whether local spots are safe to swim and water quality trends.

- **State of the Environment Reporting:** The Ministry for the Environment and Statistics New Zealand regularly produce reports which summarise the state of our environment. Every six months they produce a report covering the state of a different attribute of our environment (i.e., freshwater, land, air etc). Every three years they produce a synthesis report which covers the state of our environment as a whole.

We are working with other agencies to align and integrate our reporting approach and contribute to environmental data in New Zealand.

Appendix 1: Objectives, Functions and Purpose

Section	Content	Comment
The Regulator Act – Section 10 Objectives of Taumata Arowai		
s 10(d)	*give effect to Te Mana o te Wai, to the extent that Te Mana o te Wai applies to the functions and duties of Taumata Arowai*	Work is being undertaken to incorporate Te Ao Māori perspectives and consider Te Mana o te Wai through the environmental performance measures will ensure that we are giving effect to Te Mana o te Wai when exercising one of our functions under the Act.
s 10(e)	*provide oversight of, and advice on, the regulation, management, and environmental performance of drinking water, wastewater, and stormwater networks*	To provide oversight and advice on the environmental performance of networks we need to understand the environmental performance of networks. The information we collect under the measures is intended to shine a light on performance to improve our national understanding. This information will also help us exercise our other functions under the Act, including developing secondary legislation.
s 10(f)	*promote public understanding of the environmental performance of drinking water, wastewater, and stormwater networks*	The Network Report will provide us with an opportunity to promote public understanding of how their local networks are operating. The measures will provide the information that will go into the report.

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The Regulator Act – Section 11 Functions of Taumata Arowai		
s 11(1)(a)	*provide national level oversight, leadership, communication, and co-ordination in relation to –* *(ii) the environmental performance, management, and regulation of drinking water, wastewater and stormwater networks*	To provide oversight and leadership we need to have a good understanding of how networks are performing nationally. National consistency will also be important to ensure a consistent picture can be provided across the country.
s 11(1)(b)	*identify and monitor matters that affect the safety of drinking water, and the environmental performance of drinking water, wastewater, and stormwater networks, including current and emerging contaminants*	Annual data collection under the measures will enable us to continue to monitor performance and identify trends.
s 11(1)(d)	*provide oversight of, and information to central and local government in relation to, -* *(i) the development, operation, and effectiveness of standards, regulations, and other statutory requirements for wastewater and stormwater; and (ii) compliance with, monitoring of, and enforcement of standards, regulations, and other statutory requirements affecting wastewater networks, stormwater networks, wastewater network operators, and stormwater network operators.*	Once standards and targets are set the measures will provide the information we need to understand the effectiveness of those standards and progress towards those targets (noting this might require the existing measures to be amended or updated). This information will be summarised in the Network Report to provide this information not only to local and central government but also provide transparency for the public.
s 11(1)(f)	*facilitate, promote, or support research, education, and training, to support drinking water safety and regulation, the management of risks to sources of drinking water, and the environmental performance, management, and regulation of drinking water, wastewater, and stormwater networks*	Providing a nationally consistent data record is expected to support and promote research within the water sector. It is important therefore that the measures provide a picture of any emerging challenges in the sector that may need to be addressed.

s 11(1)(i)	*identify, prepare, or promote national guidelines and best practices that relate to-* *(ii) wastewater networks, stormwater networks, wastewater network operators, and stormwater network operators.*	As part of the Network Report Taumata Arowai is required to provide examples of best practice. The measures will help us identify good and best practice which can inform national guidelines as well as the Network Report.
The Water Services Act – Section 3 Purpose of this Act		
s 3(2)(a)	*to establish a framework to provide transparency about the performance of drinking water, wastewater, and stormwater networks and network operators*	The environmental performance measures are a component of this framework along with the Network Report.

Appendix 2: Drinking water measures

Insight	Performance Measure	Data
Environmental and public health is protected	Drinking water treatment by-products	Sludge (tonnes), backwash water (m^3), screenings (tonnes)
		Disposal route (freshwater, marine, land, stockpile, landfill, other)
	Fish passage and screening	Is fish passage impeded or potentially impeded within a natural water body?
		Is fish ingress prevented at all intake points?
	Resource consent compliance[3]	Have consent conditions been met for each category of condition (categories may include, discharge standards, plant operation, complaints and incidents, administrative, management plans, governance/engagement etc.)?
		If consent conditions have not been met for one or more categories further information should be provided in the comments field.
		When undertaking our analysis we are proposed to group consents by population thresholds to provide more context based on the scale of the supply (i.e., <750, 750 – 10,000, >10,000). These groupings will be undertaken using the population information that is already required to be supplied by the network operator.
		Breaches of permitted activity rules
Services are reliable	System interruptions	Number of properties that experience an urgent fault for longer than eight hours
		Number of unplanned interruptions (include comment if other than main breaks, bursts)
	Water pressure	Reference level of pressure (if set) (kPa)
		Number of properties below reference level of pressure
Resources are used efficiently	Use of water resources	Consented rate of take for each abstraction point (instantaneous rate) (L/s)
		Maximum daily consented volume (m^3)

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[3] Note: network operators will be asked to provide information on whether they meet their consent conditions, in future years it is likely consent compliance information will also be sought from the regional councils so that the two sources of information can be compared.

Insight	Performance Measure	Data
		Maximum annual consented volume (m^3)
		The number of abstraction points with water meters installed
		How frequently are water abstraction meters calibrated?
		The number of water abstraction meters connected to telemetry systems
		Days for which a complete telemetry dataset has been recorded
	Alternative water use	Volume of recycled wastewater supplied to residential customers (m^3)
		Volume of recycled wastewater supplied to non-residential customers (m^3)
		Volume of recycled wastewater supplied to managed aquifer recharge (m^3)
		Volume of urban stormwater captured for reuse (m^3)
Services are resilient	Disaster response planning and preparedness	Has a business continuity plan (that addresses both natural and technological disasters) been developed?
		Date the business continuity plan was last reviewed
		Date when an exercise of business continuity plan was last conducted
	Water security	Has a drought management plan been developed to manage water resources and drinking water reticulation networks during periods of drought?
		Do you have a plan to maintain normal supplies of treated water during periods where one or more raw water sources is affected by high turbidity?
	Water restrictions	Number of days that water restrictions were in place
Services are economically sustainable	Expenditure	Total capital expenditure (during the reporting period), split into categories where available (e.g. capital expenditure to meet additional demand, capital expenditure to improve the level of service, capital expenditure to replace existing assets).
		Total operational expenditure (during the reporting period), split into categories where available (e.g. payments to staff and suppliers, finance costs, other operating funding applications)

Insight	Performance Measure	Data
	Forecast expenditure	Total forecast capital expenditure for the next ten years (where available)
		Total forecast capital expenditure for the next reporting period (one year)
		Total forecast operational expenditure over the next ten years (where available)
		Total forecast operational expenditure for the next reporting period (one year)
	Revenue	Total revenue (split into categories where available i.e., growth charges fixed rates etc.)
		Total forecast revenue over the next ten years (where available)
		Total forecast revenue for the next reporting period (one year)

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Appendix 3: Wastewater measures

Year One Measures

Insight	Performance Measures	Data
General asset information	Wastewater network information	Number of wastewater pump stations
		Kilometres of wastewater pipe
		Kilometres of combined wastewater and stormwater pipelines
		Kilometres of pressure sewers
	Wastewater treatment	Number of wastewater treatment plants
		Wastewater treatment plant name
		Wastewater treatment process (e.g., primary, secondary, tertiary etc.)
		Treated wastewater discharge receiving environment (i.e., groundwater, surface water, land etc.)
		Volume of wastewater treated at treatment plant (average dry weather and peak flows) (m^3/year)
		Treatment capacity (m^3/day)
		Volume of trade waste at treatment plant (m^3/year)
		Volume of septage imported for treatment (m^3/year)
		Wastewater imported for treatment from other wastewater networks (m^3/year)
		Wastewater exported for treatment by another wastewater network operator (m^3/year)
Environmental and public health is protected	Wastewater network connections	Number of residential connections in the wastewater network
		Number of non-residential connections in the wastewater network
		Total population served by the wastewater network
	Resource consent compliance	Number of consents held for each wastewater treatment plant
		Type of resource consent (i.e., discharge to air, land or water, land use consent)
		Resource consent reference number
		Resource consent expiry date
		Consent status (i.e., active, expired, operating under s 124 RMA)
		Wet weather overflow regulation approach under local regional plan (i.e., permitted, controlled, discretionary, restricted discretionary or prohibited)
		Number of consents held for wet weather wastewater overflows in the network
		Resource consent reference numbers for wet weather wastewater overflows
		Resource consent expiry date for wet weather wastewater overflows
	Wastewater overflows	Number dry weather wastewater overflows
		Number overflows caused by blockages
		Number overflows caused by plant failures

		Number wet weather overflows from the wastewater network
		Number wet weather overflows from combined stormwater and wastewater networks
		Number wastewater overflows on private properties
		Are overflows recorded through verbal reports? (yes/no)
		Are overflows recorded through SCADA monitoring? (yes/no)
		Are overflows calculated through hydraulic models? (yes/no)
		Are overflows calculated through calibrated hydraulic models? (yes/no)
		Number of days where treatment plant bypass occurred
	Inflow and infiltration	Treatment plant peak wet to average dry weather flow ratio
		Sewage design standards for network capacity
		Sewage containment of the existing network
	Trade waste	Trade waste bylaw
		Individual trade waste consents
		Number of companies breaching trade waste consents
		Number of non-compliance actions in response to trade waste breaches
Services are reliable	Fault attendance and resolution	Median hours to attend to an urgent fault
		Median hours to resolve an urgent fault
		Median hours to resolve a non-urgent fault
	Systems interruption	Planned interruptions
		Third party incidents
	Asset condition	% of pipelines that have received a condition grading
		% of pipelines in poor or very poor condition
		Average age of water pipelines
		% of the network that has had CCTV inspections carried out in the last five years
		% of above ground assets that have received a condition grading
		% of above ground assets in poor or very poor condition
Resources are used efficiently	Energy efficiency	Electricity use (kWh)
		Energy use from other fuels (GJ)
		Energy generation (GJ)
	Process emissions	Wastewater treatment plant process emissions
		Wastewater treatment wetland emissions
		Wastewater effluent disposal emissions
		Wastewater sludge treatment emissions
		Wastewater sludge disposal emissions
	Biosolids	Treatment Plant sludge production of wet sludge/biosolids
		% of dry solids in wastewater sludge/biosolids
		Disposal of wastewater sludge in year to on site stockpile
		Disposal of wastewater sludge in year to landfill
		Disposal of wastewater sludge in year to composting and reuse

		Disposal of wastewater sludge in year to other routes
		Last year desludged
Services are resilient	Critical assets	Have you undertaken an assessment to identify critical assets?

Year Two Measures

Insight	Performance Measure	Data
Environmental and public health is protected	Resource consent compliance	Compliance with resource consent conditions (same approach as for drinking water but consents grouped by dry weather flow rather than population).
		Breaches of permitted activity rules
		Design loads for set parameters (e.g., BOD, TSS)
	Wastewater overflows	Treatment plant bypass volumes
		Overflow receiving environment
		Estimated volume
		Overflow time
		Response time
	Fish ingress	Is fish ingress prevented at all ingress points?
	Environmental monitoring (discharge only)	Details of monitoring programmes undertaken to assess environmental impact (i.e., contaminants, frequency of samples etc.)
Services are reliable	Systems interruptions	Number of properties that experience an urgent fault for longer than six hours
		Number of unplanned interruptions (include comment if the interruption is other than a break or burst)
		Total number of properties affected by unplanned interruptions
		Median hours to attend a non-urgent fault
		Average hours unavailable per customer per year
Resources are used efficiently	Wastewater reuse	Volume of wastewater applied to land
		Proportion of wastewater beneficially reused
Services are resilient	Return to service post disaster	Days to connect to post disaster service levels
		Days taken to return to normal levels of service post disaster
Services are economically sustainable	Expenditure	Total capital expenditure (during the reporting period), split into categories where available (e.g. capital expenditure to meet additional demand, capital expenditure to improve the level of service, capital expenditure to replace existing assets).

Insight	Performance Measure	Data
		Total operational expenditure (during the reporting period), split into categories where available (e.g. payments to staff and suppliers, finance costs, other operating funding applications)
	Forecast expenditure	Total forecast capital expenditure for the next reporting period
		Total forecast operational expenditure for the next reporting period
	Revenue	Total revenue
		Total forecast revenue for the next reporting period
	Cost and revenue allocation	Cost allocation between drinking water, wastewater, and stormwater
		Revenue allocation between drinking water, wastewater, and stormwater (where available)

Year Three Measures

Insight	Performance Measure	Data
Environmental and public health is protected	Resource consent compliance	Consent conditions
		Discharge monitoring
	Environmental monitoring (discharge and overflows)	Contaminant load/concentration and trends, including specified emerging contaminants
		Biodiversity/aquatic ecology monitoring
Services are reliable	Capacity to accommodate growth	Population projections
		Current network capacity
Resources are used efficiently	Greenhouse gas emissions	Greenhouse gas capital emissions (tonnes/m3)
		Greenhouse gas operational emissions (tonnes/m3)
Services are resilient	Return to service post disaster	Levels of service post disaster
		Levels of service during disaster
	Climate change adaptation	Adaptation actions/planning to manage risks associated with increases in extreme events
	Resilience to cyber threats/terrorist attack	Processes in place to address cyber threats / terrorist attack

Appendix 4: Consultation Questions

The following questions will be asked through our consultation portal. We ask that you provide responses via the portal as this greatly assists our analysis of submissions and allows us to process submissions more efficiently. The questions below are provided to facilitate preparation of your answers before entering them into the consultation portal.

Tell us about yourself

1. Full name
2. Email address – this will only be used if we need to communicate with you about your submission or if you indicate below that you would like to be contacted in the future in relation to network environmental performance.
3. Are you providing feedback:
    a. As an individual
    b. On behalf of an organisation (provide organisation or group name and position/title within the organisation).
4. Where do you live/reside – if your organisation has presence in more than one region – select 'National'.
5. Which of the below options best describes you in the context of this consultation?
    a. Stakeholder representative/industry body
    b. Iwi representative organisation
    c. Marae
    d. Health professional
    e. Laboratory
    f. Local authority or Council Controlled Organisation
    g. Regional Council
    h. Central government agency
    i. Local interest group
    j. Other
6. If you would like to be contacted in the future by Taumata Arowai in relation to environmental performance measures, please select the option (yes or no).

Publishing submissions and Official Information Act 1982 requests

7. Do you give us permission to proactively publish your submission?
8. Your submission may be subject to requests made under the Official Information Act (OIA) even if it has not been published. Your preference about the release of your submission, including you contact details, will be relevant to our decision on each request. We may be legally required to make your submission available, even if you indicate that you would prefer us not to release it.
9. If you asked us to withhold your submission, your personal details, or any other information in your submission, please outline the reasons why you would prefer that information not be made available.

Reasons for withholding might include that it's commercially sensitive or it's personal information.

Any decision Taumata Arowai makes to withhold information requested under the OIA can be reviewed by the Ombudsmen, who may recommend that Taumata Arowai release the withheld information.

Drinking water measures

10. Do you agree with the year two drinking measures and data points for the outcome **environmental and public health is protected**?
11. Do you agree with the year two drinking measures and data points for the outcome **services are reliable**?
12. Do you agree with the year two drinking measures and data points for the outcome **resources are used efficiently**?
13. Do you agree with the year two drinking measures and data points for the outcome **services are resilient**?
14. Do you agree with the year two drinking measures and data points for the outcome **services are economically sustainable**?
15. Do you think we have missed any drinking water measures or data that will help us assess the five outcomes identified above?
16. Do you have any comment on the likely impact of complying with the data requirements in the timeframe outlined (i.e., will compliance require operators to employ more people or purchase new software)?

Defining wastewater treatment plants

17. Do you agree with the proposed definition of wastewater treatment plants?
18. [if no] How do you think wastewater plants should be defined?
19. Do you think there are any wastewater networks that would be captured by this definition that shouldn't be?

Wastewater measures

20. Do you agree with the proposed phasing of the wastewater measures over three years?
21. Do you want to provide separate comments for each of the five outcomes?

If no….

22. Do you agree with the **year one** wastewater measures and data points?
23. Do you agree with the **year two** wastewater measures and data points?
24. Do you agree with the **year three** wastewater measures and data points?

If yes…

25. Do you agree with the **year one** wastewater measures and data points for the outcome **environmental and public health is protected**?
26. Do you agree with the **year two** wastewater measures and data points for the outcome **environmental and public health is protected**?

27. Do you agree with the **year three** wastewater measures and data points for the outcome **environmental and public health is protected**?
28. Do you agree with the **year one** wastewater measures and data points for the outcome **services are reliable**?
29. Do you agree with the **year two** wastewater measures and data points for the outcome **services are reliable**?
30. Do you agree with the **year three** wastewater measures and data points for the outcome **services are reliable**?
31. Do you agree with the **year one** wastewater measures and data points for the outcome **resources are used efficiently**?
32. Do you agree with the **year two** wastewater measures and data points for the outcome **resources are used efficiently**?
33. Do you agree with the **year three** wastewater measures and data points for the outcome **resources are used efficiently**?
34. Do you agree with the **year one** wastewater measures and data points for the outcome **services are resilient**?
35. Do you agree with the **year two** wastewater measures and data points for the outcome **services are resilient?**
36. Do you agree with the **year three** wastewater measures and data points for the outcome **services are resilient**?
37. Do you agree with the **year two** wastewater measures and data points for the outcome **services are economically sustainable**?
38. Do you think we have missed any wastewater measures or data that will help us assess the five outcomes identified above?
39. How do you think qualitative data can be used to build a richer picture of network environmental performance?
40. Do you have any comment on the likely impact of complying with the data requirements in the timeframe outlined (i.e., will compliance require operators to employ more people or purchase new software)?

Next steps

41. Do you want to be contacted when targeted consultation on the drafting of the measures and data points begins?
42. Do you want to be contacted when we begin consultation on the Te Ao Māori measures?

Links with other Government work

43. Have we missed any other pieces of work that relate to drinking water environmental performance?

Additional feedback

44. If you want to provide any additional feedback on any aspect of the environmental performance measures, please provide this here.