

Water supply and demand – the current state (Presentation 1)

Water Shortage Summit
11 September 2023



Our water, our future

Our focus



Expectations and obligations

Customer and community expectations

- Sufficient, reliable and safe water
- Ensure it is supplied and used efficiently
- Health of source waters and connected ecosystems maintained
- Sustainable supply for future generations, including financially

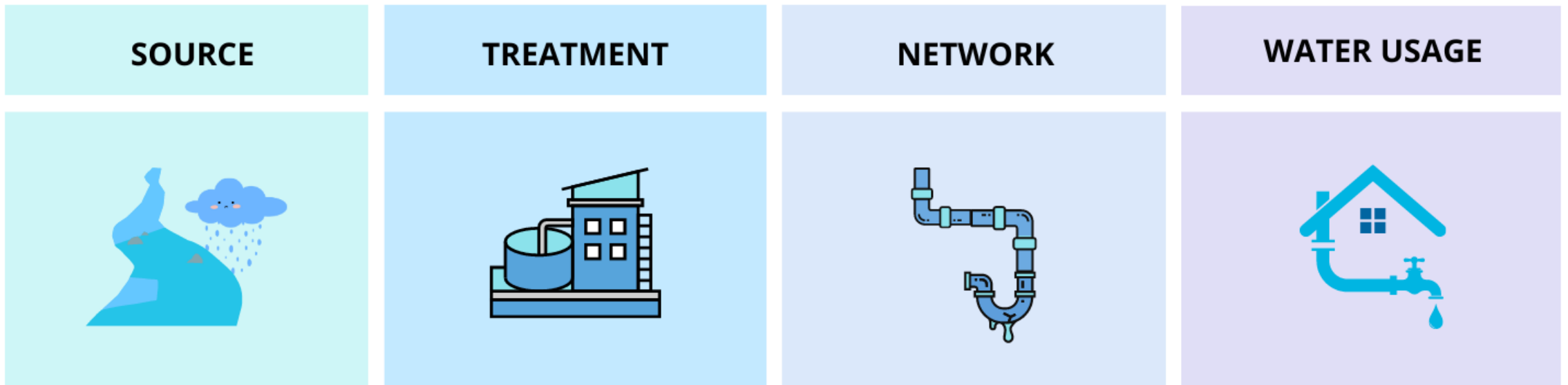
Regulatory obligations

- Sufficient water to meet normal demand for 1-in-50 year drought
- Provide reliable water supply
- Provide a sufficient quantity of water (Water Services Act)
- Restore te mauri o te wai
- Operate within resource consents



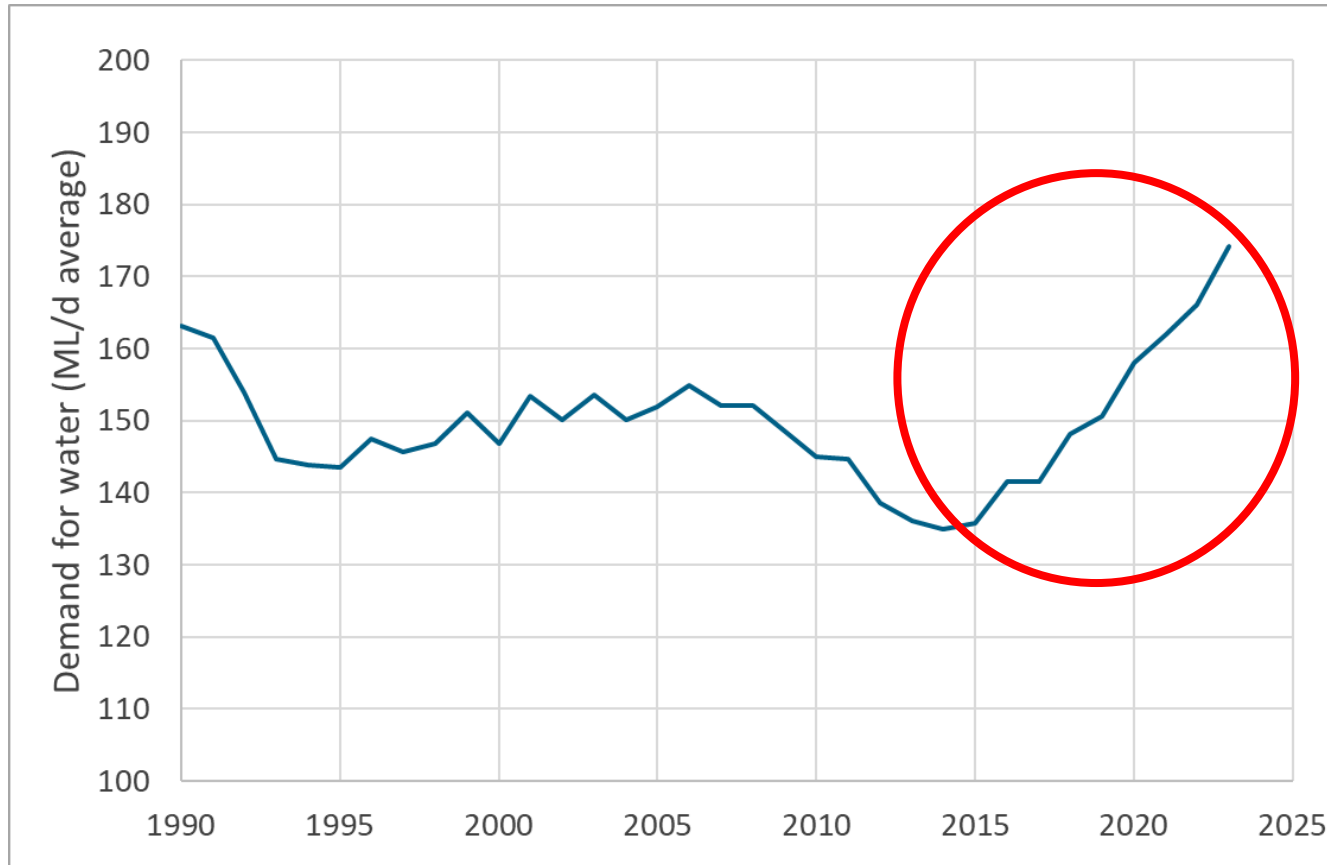
Water – from catchment-to-tap

An integrated system whose elements all play their part.



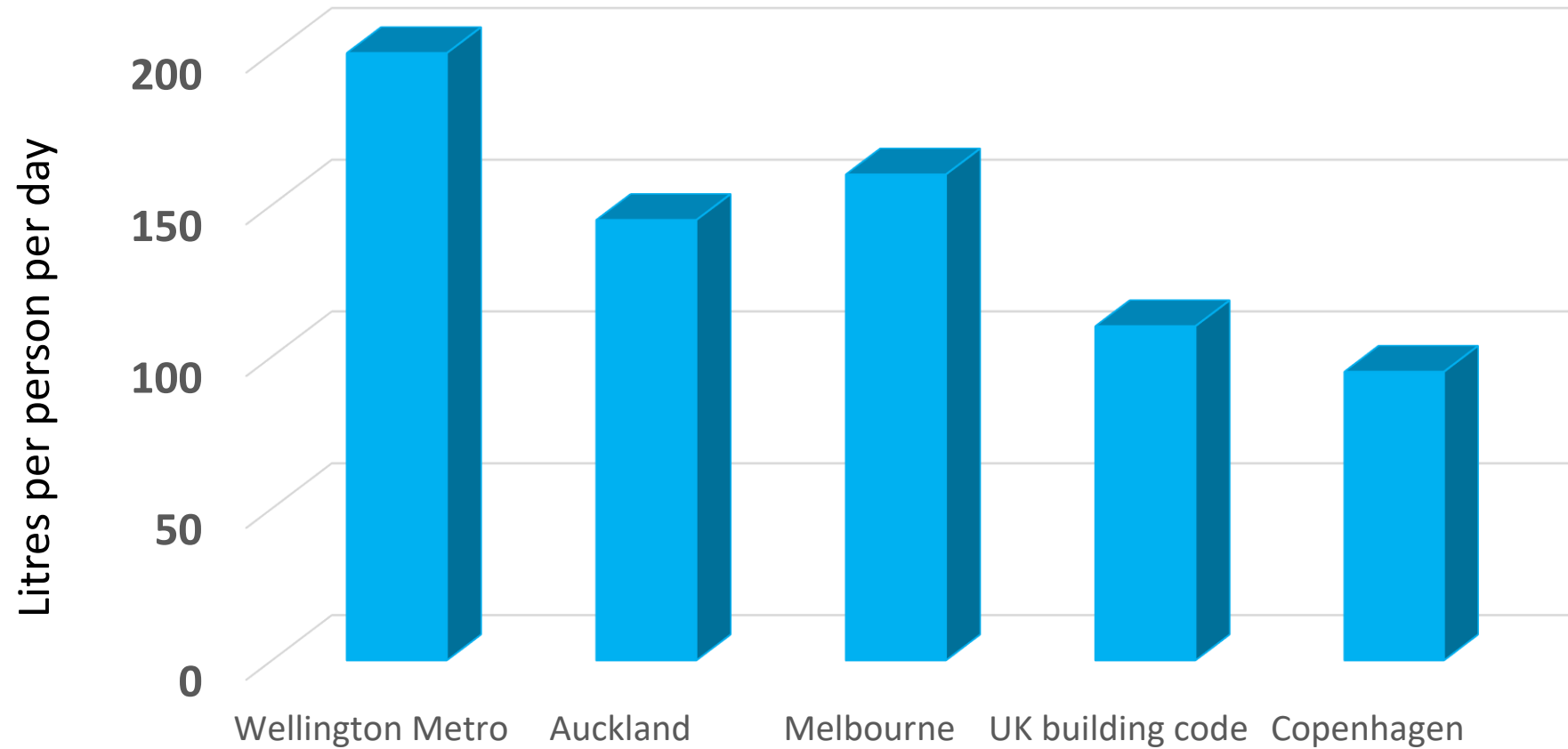
The region's demand for water is increasing

It is at record levels, with significant population growth forecast



How we compare with other cities

Wellington households use more water than other cities

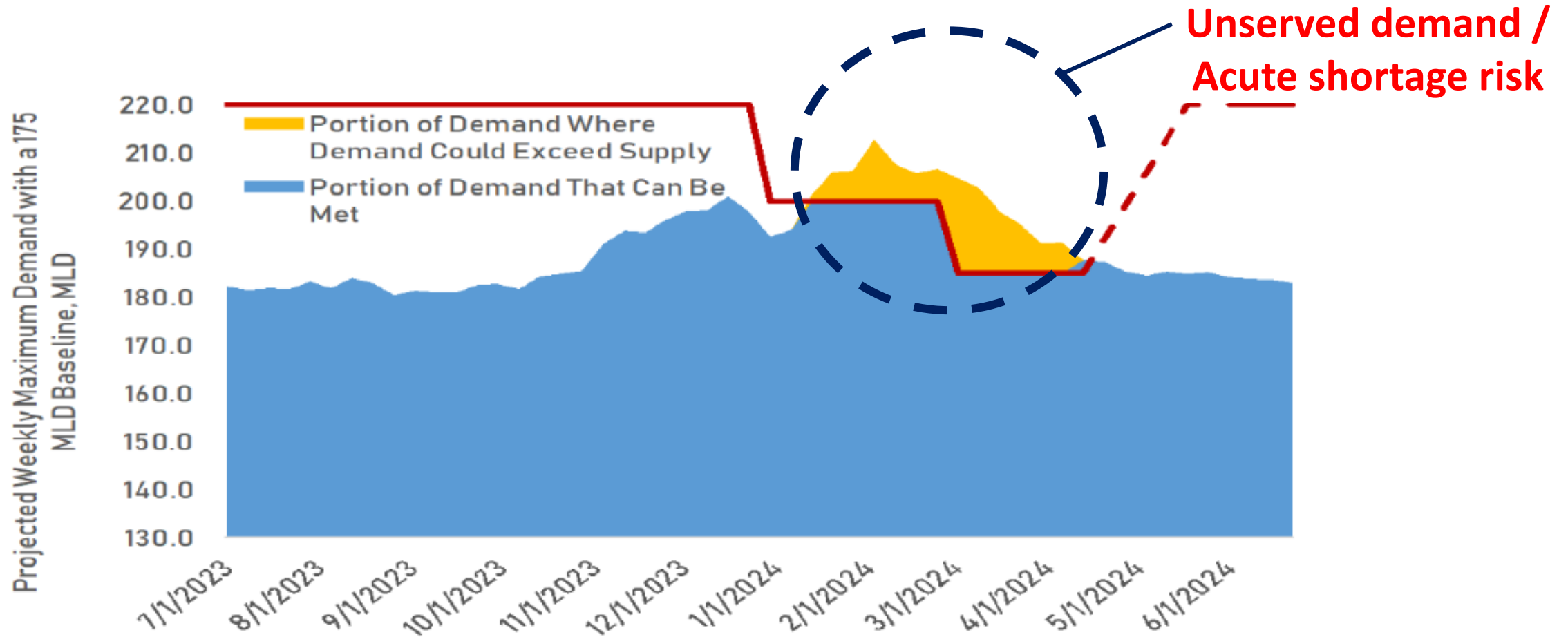


Leaking pipes play a key role

Around 45% of the water we take is being lost to leaks

Council	Estimated public network water loss	Estimated total water loss (public & private)
Hutt City	37%	46%
Wellington City	31%	41%
Upper Hutt City	44%	52%
Porirua City	31%	41%
Metro region total	34%	44%

Water demand will exceed available supply



This has real impacts for your residents and communities

The risk is real. This year if we have an average summer it's likely the region will face a water shortage. Councils and Wellington Water may have to put in place more severe water restrictions. Level 3 and 4 = standing up an emergency response

The image displays four posters for residential water restriction levels, arranged from left to right:

- Level 1:** "Kia ora, we're at residential Water Restriction Level 1". Instruction: "Use sprinklers every other day". Icons show a sprinkler, a calendar for "JAN 12" with a checkmark, and a hose with a checkmark.
- Level 2:** "Kia ora, we're at residential Water Restriction Level 2". Instruction: "Limit residential outdoor water use". Icons show a sprinkler with a red 'X', a hose with a checkmark, and a house with a checkmark.
- Level 3:** "Kia ora, we're at residential Water Restriction Level 3". Instruction: "Stop residential outdoor water use". Icons show a sprinkler with a red 'X', a hose with a red 'X', and a house with a checkmark.
- Level 4:** "Kia ora, we're at Water Restriction Level 4". Instruction: "Ban on outdoor water use. Reduce indoor water use." Icons show a sprinkler with a red 'X', a hose with a red 'X', and a house with a red 'X'.

Wellington Water logo and "more info at wellingtonwater.co.nz" are present on each poster. A red dashed box encloses the Level 3 and 4 posters. A yellow starburst graphic with "-50%" is positioned below the Level 3 poster, and a red starburst graphic with "-70%" is positioned below the Level 4 poster. A red arrow points from the text "Level 3 and 4 = standing up an emergency response" to the Level 3 poster.

Risks this summer, and into the future

We're focused on the long-term, enduring risks today

Timescale	Summer day	Summer	Enduring
Scenario	Peak usage exceeds treatment plant capacity	Demand exceeds water available	Demand increases (growth, leaks) Access reduced (Whaitua)
Impact on communities	Acute shortage Health risk (boil water notice)	Extended, severe restrictions	Ongoing water shortages

Its not just about people, it's also about the water

These decisions have consequences for generations to come

- Restoring the balance between the people, the environment, and the water
- Current takes are unsustainable (Whaitua Te Whanganui-a-Tara)
- Leaks are water that should be left in the river
- Must give effect to Te Mana o te Wai when consenting (2035)



¹² Te Awa Kairangi: He Taonga
THE HUTT RIVER: A CULTURAL TREASURE

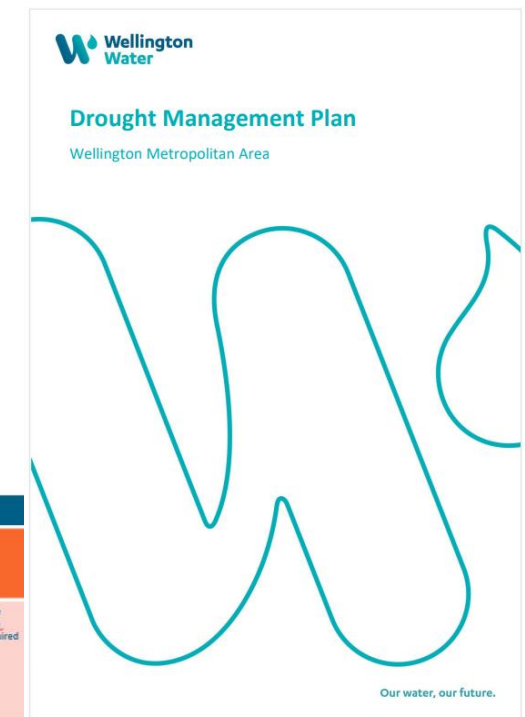
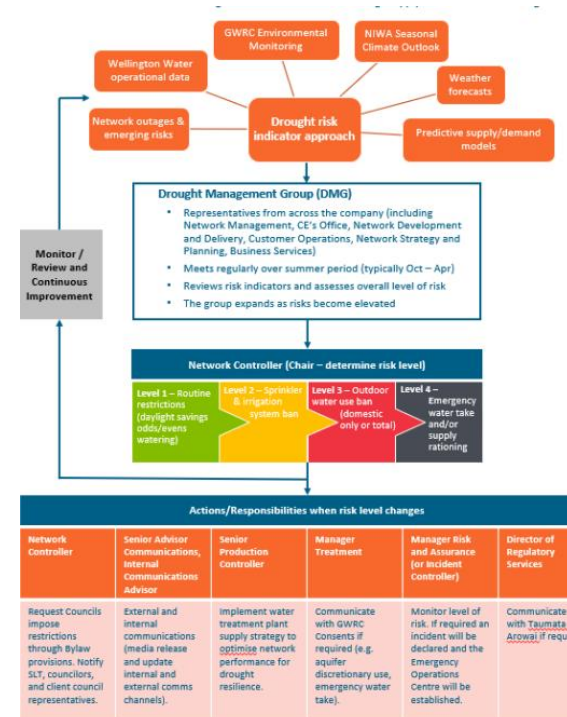
^{12.1} Te whakamārama i Te Awa Kairangi
Describing Te Awa Kairangi

! Wai Kautū - wadeable - state of uncertainty and risk

There are plans for this summer

We are doing what we can to reduce water loss, and have plans in place if the risk manifests

- Acute water supply and demand steering group with independent chair in place
- Implementing water loss management plan actions to the extend of available funding and resources.
- Summer leaks and water conservation communications planning
- Drought management plan in place



Key points

Things to remember as we move into the next section



We can't sit on our **hands**: there are legal obligations to customers and the environment/the water and not just expectations



It matters for **people**: we are talking about people going without water that enables them to enjoy living here



It matters for the **water**: our rivers are under stress and we need to ensure they have sufficient water to flourish



Its about what we **take** and what we **use**: water supply is an integrated system from catchment-to-tap and all of its elements play their part



The system is at **its limits**: demand is exceeding supply, and more water needs to be left in the rivers

Water supply and demand risk – Focus on outcomes & actions

(Presentation 2)

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The risk is increasing



Population Growth
(and per capita demand)



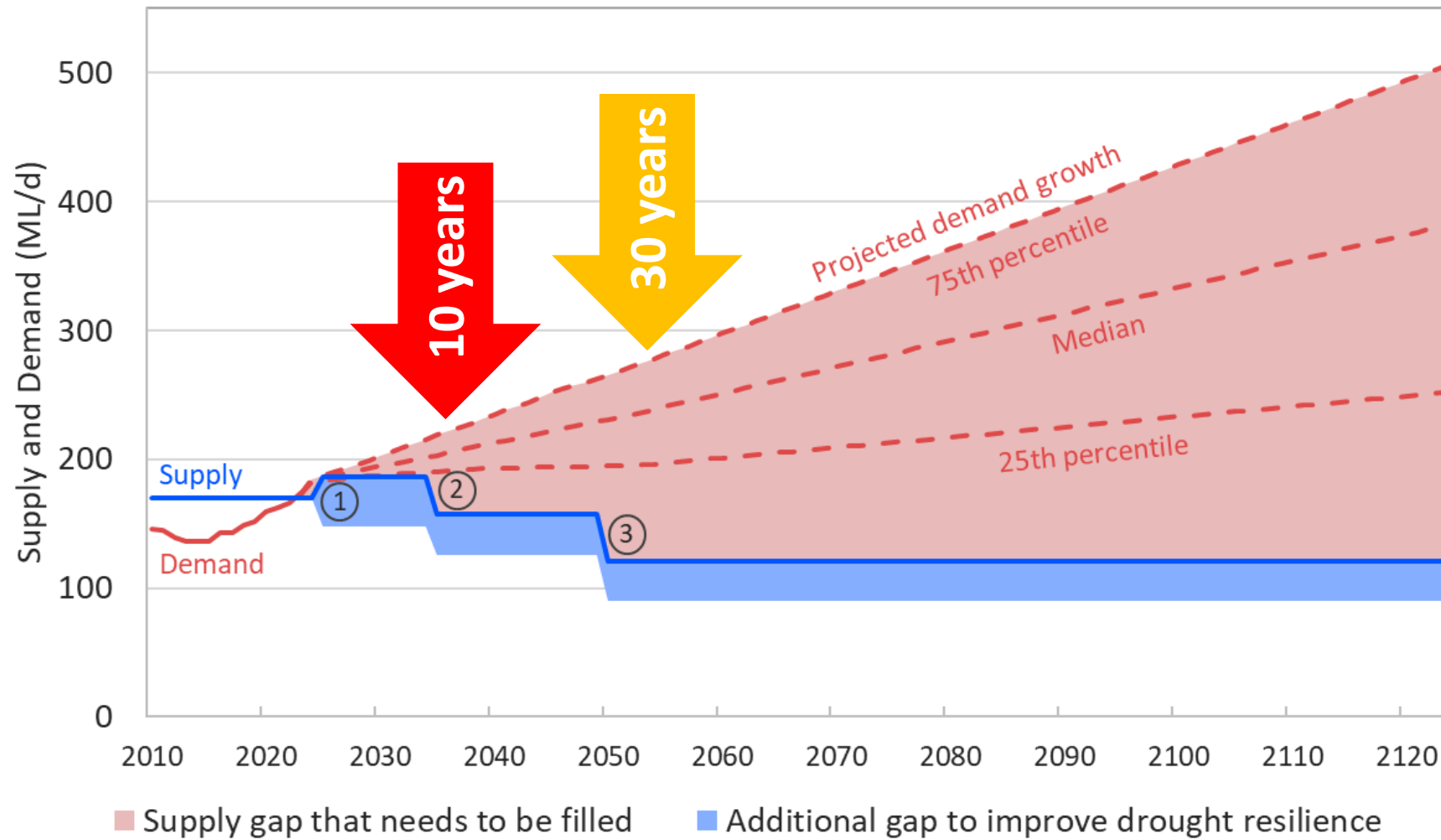
Te Mana o te Wai



Climate Change
(including sea level rise)

Increasing Resilience
(and expected Level of Service)

The risk is increasing into the future



We are planning for the future

Our approach:

- While the future is uncertain, it can still be planned for
- We are looking through a multi-generational lens (Te Mana o te Wai, long-lived cities and assets)
- We need solutions that are sustainable for the water, environment, and people (Te Ika Rō Wai)
- Conceivable pathways have been identified, sequenced and tested

A focus on outcomes:

We view this work through a set of three outcomes: **Keep, Reduce, Add (KRA)**



Keep the water in the pipes

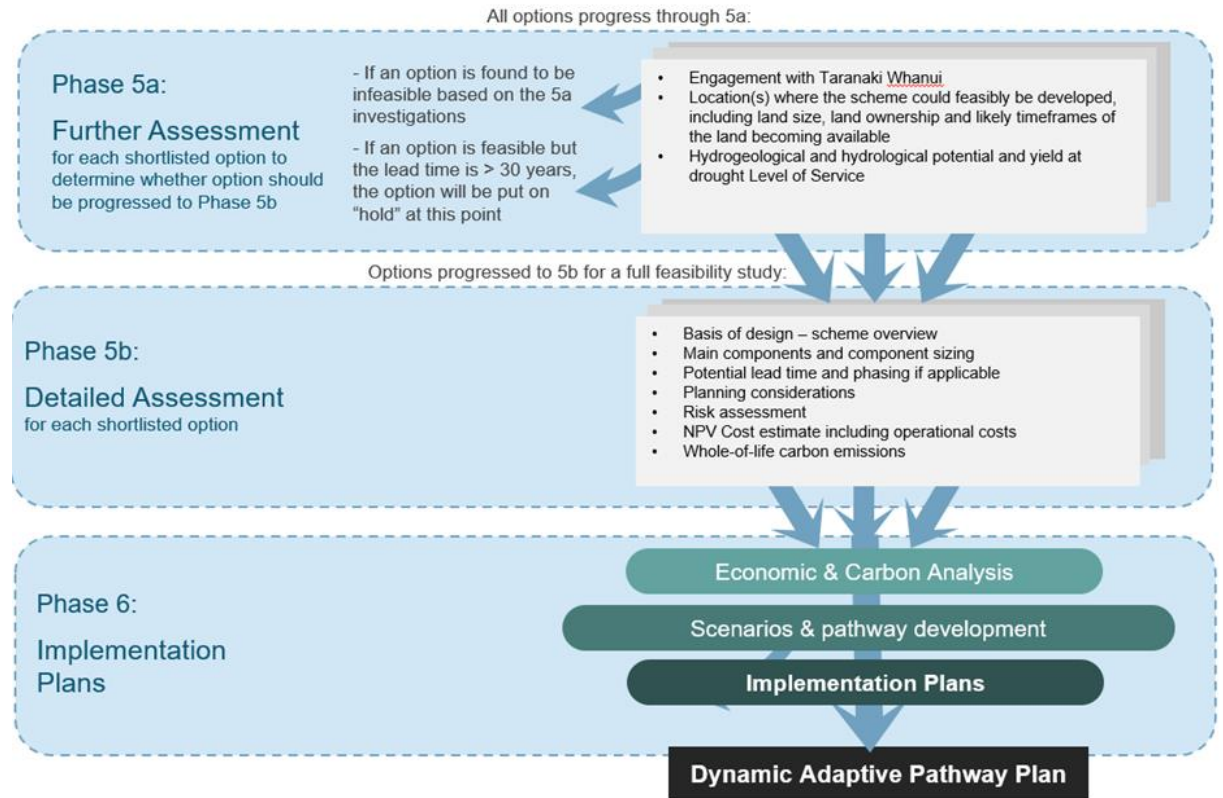
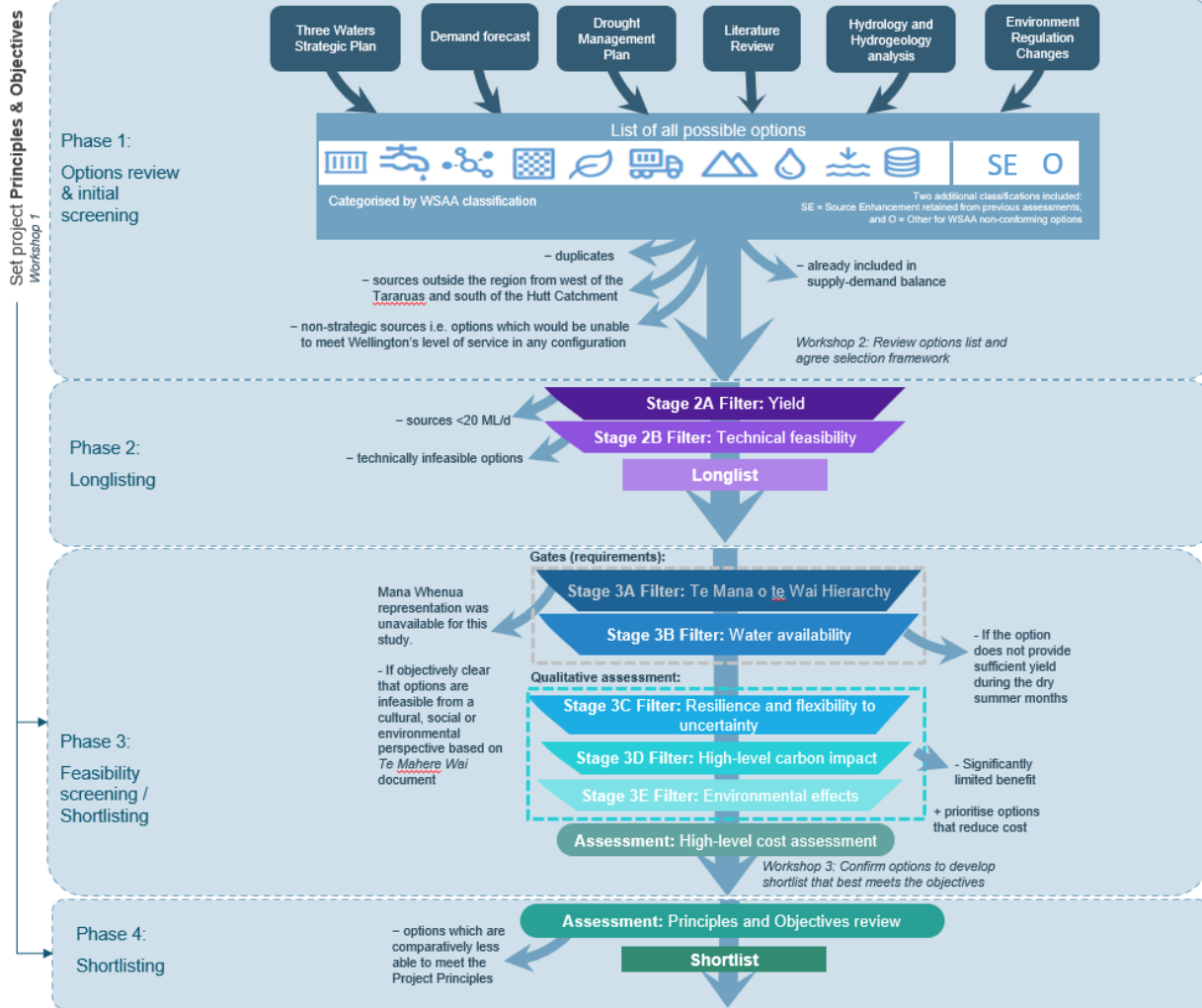
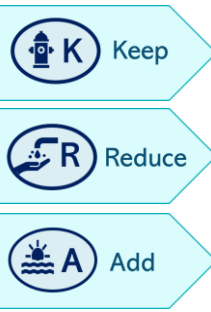


Reduce water demand through water metering

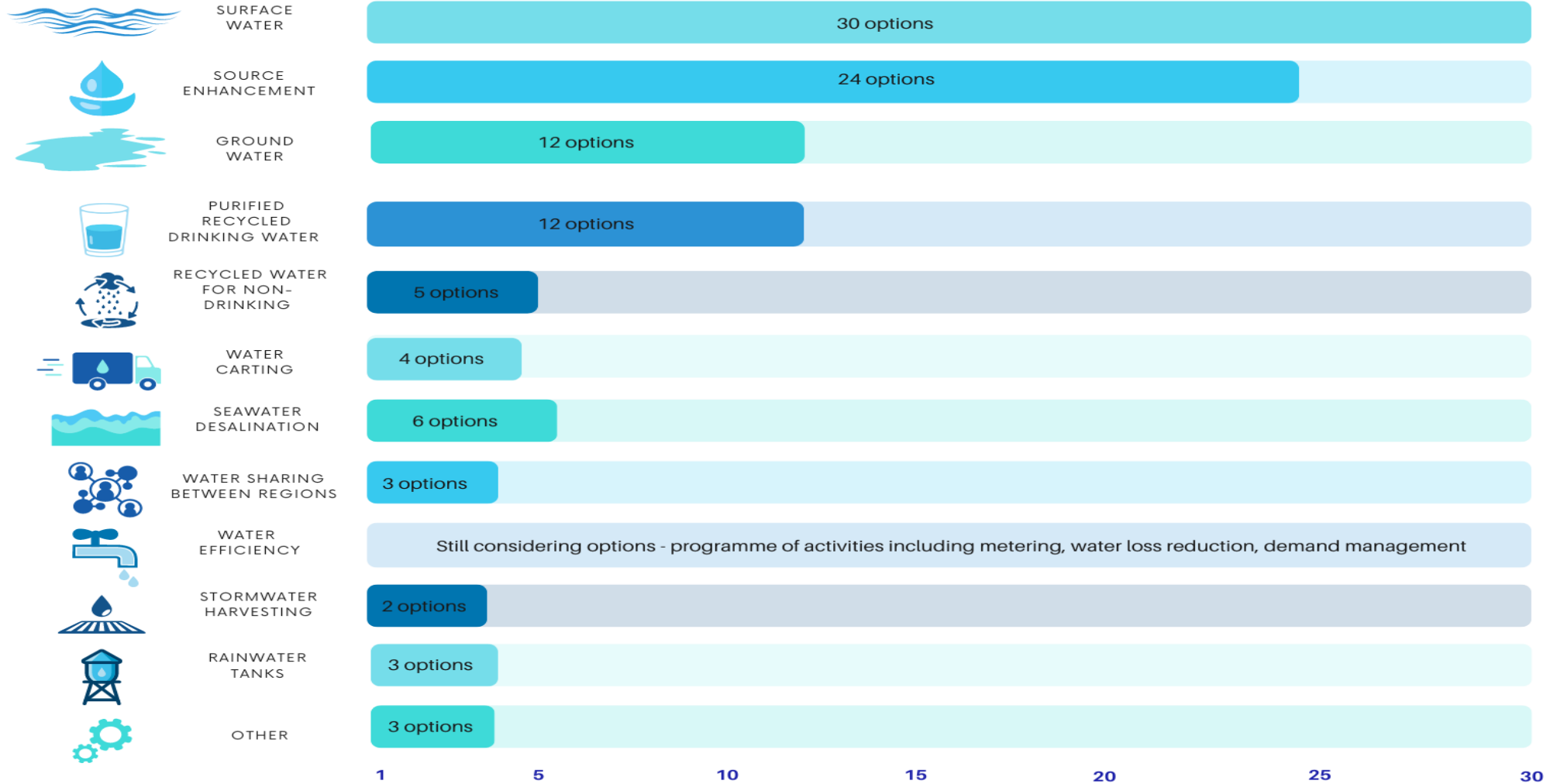


Add more supply (e.g. storage lakes) so we have increased back up supply in the summer

A comprehensive approach, applying best practice



We've considered many possible options



A range of mitigations were shortlisted



Keep



Reduce



Add

'Conserve' options:



'Construct' options:



- Universal metering with demand management
- Water loss reduction
 - Existing investment (public leaks currently around 35% and rising)
 - medium investment (reduce public leaks to 25%)
 - high investment (reduce public leaks to 12%)





















- Storage at Pakuratahi Lake 1 and 2
- Storage at Pakuratahi Lake 3
- Storage at Wainuiomata
- Managed aquifer recharge
- Desalination or Purified recycled water scheme



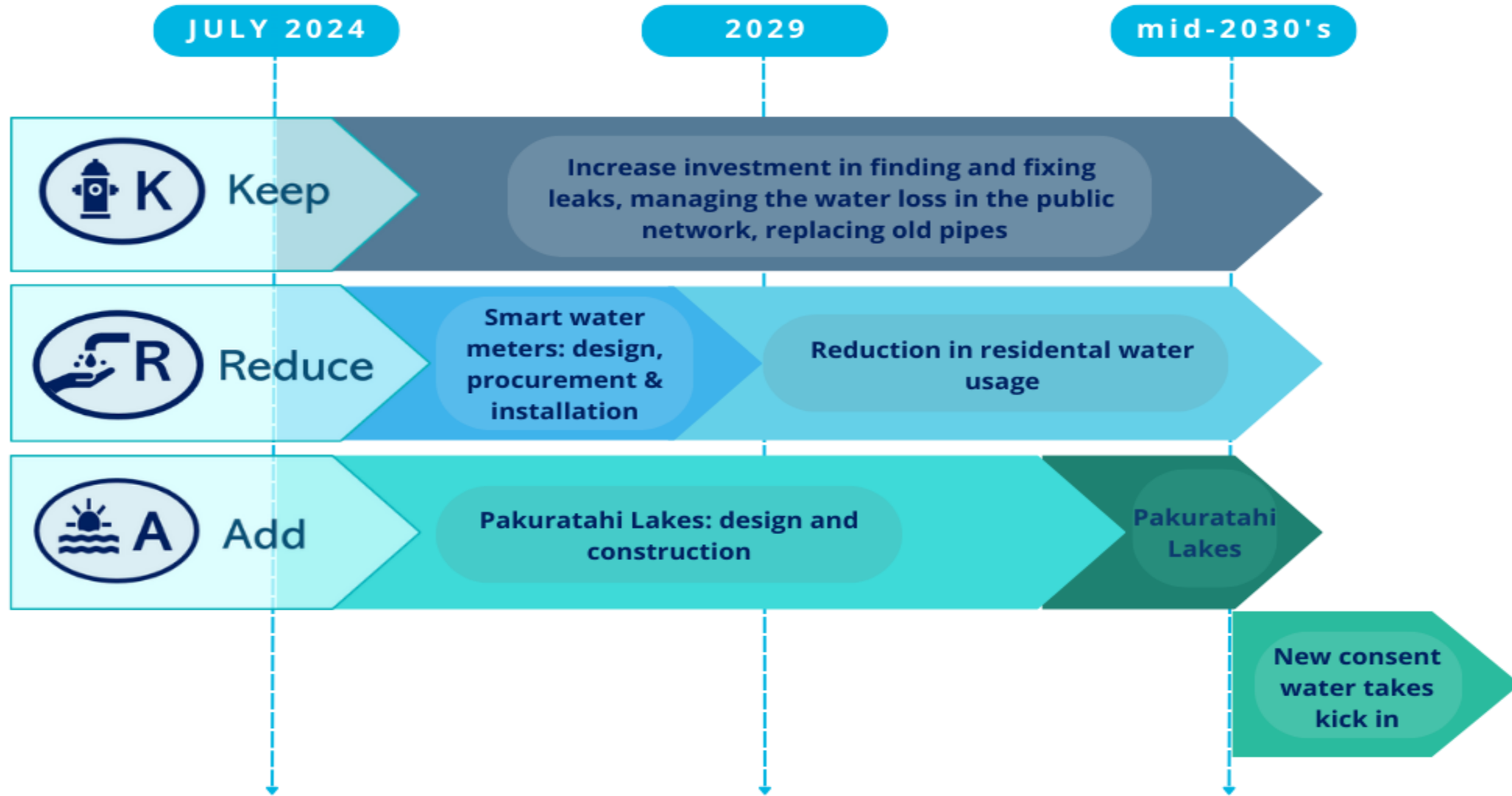
Some scenarios

Our current approach is no longer working – doing just one thing is no longer an option

 Keep
 Reduce
 Add

Our commitments / outcomes	Scenario 1: supply + meters + reduce leaks  K  R  A	Scenario 2: supply + reduce leaks (no meters)  K  A	Scenario 3: supply only (no meters + not reducing leaks)  A
Able to meet demand			 First 10 yrs  10+ yrs
Carbon emissions			
Te Mana o te Wai			
Additional supply	Pakuratahi Lakes 1 & 2	Pakuratahi Lakes 1,2 & 3 Wainuiomata storage Managed aquifer recharge	Pakuratahi Lakes 1,2 & 3 Wainuiomata storage Managed aquifer recharge Desalination
Capital cost (estimates)	\$600m - \$1.2bn	\$1bn - \$3bn	\$2bn - \$4bn

Recommended actions that need to start now



Keep
Reduce
Add

Key points



Things to remember as we move into the next section



Change is needed now:
When you add growth and climate change, our current approach and trajectory is unsustainable

Investment is needed now:
All necessary solutions will take time to implement and prolonging decisions increases the risk to customers

Its about using and losing less, as well as finding more:
Meters and water loss management are essential to avoiding a high cost, high impact future

Its about meeting the right outcomes KRAs:



Keep the water in the pipes



Reduce water demand through water metering



Add more storage lakes so we have increased back up supply in the summer

Water supply and demand risk – a focus on solutions

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Reminder of our KRA outcomes

In this section we're going to focus on solutions to meet our outcomes



K Keep the water in the pipes



R Reduce water demand through water metering



A Add more supply (e.g. storage lakes) so we have increased back up supply in the summer

Adding supply to meet growth and prepare for new consents



Keeping water in our pipes

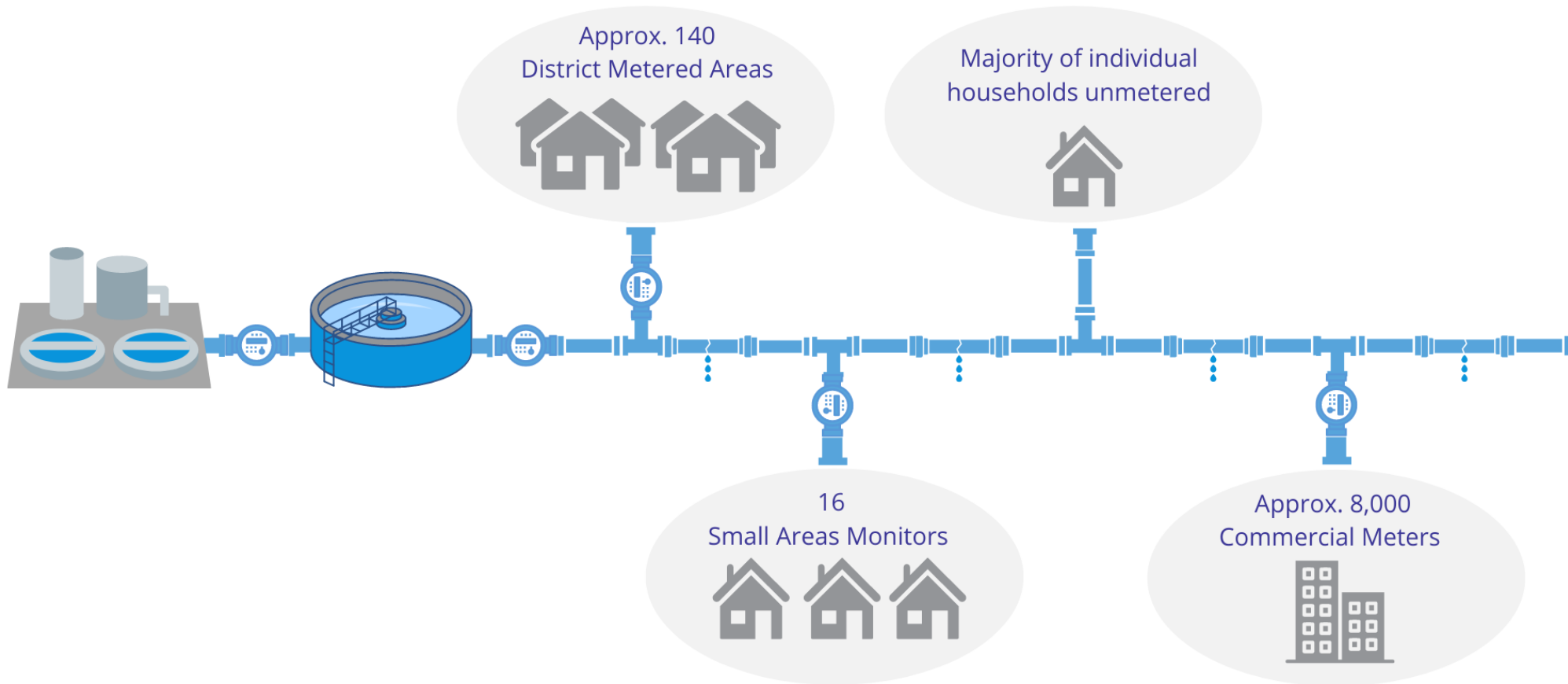
This is about increasing investment in the following water loss management activities

- Finding leaks
- Fixing leaks
- Preventing leaks

We know & don't know about water use



We have some information but need more for metro Wellington



What is universal smart metering?



How smart meters work



Benefits of universal smart meters



Smart meters allow us to:



Better manage the network

Reduce network leaks by allowing us to find leaks faster



Better meet environmental outcomes

Keeps more water in the rivers



Reduce water use

Allows us & residents to identify leaks on private properties faster & provides residents with information about their water use



Have increased flexibility

Integration with smart networks and smart cities



Better engage with residents

Provides information to support behaviour change

Metering is common

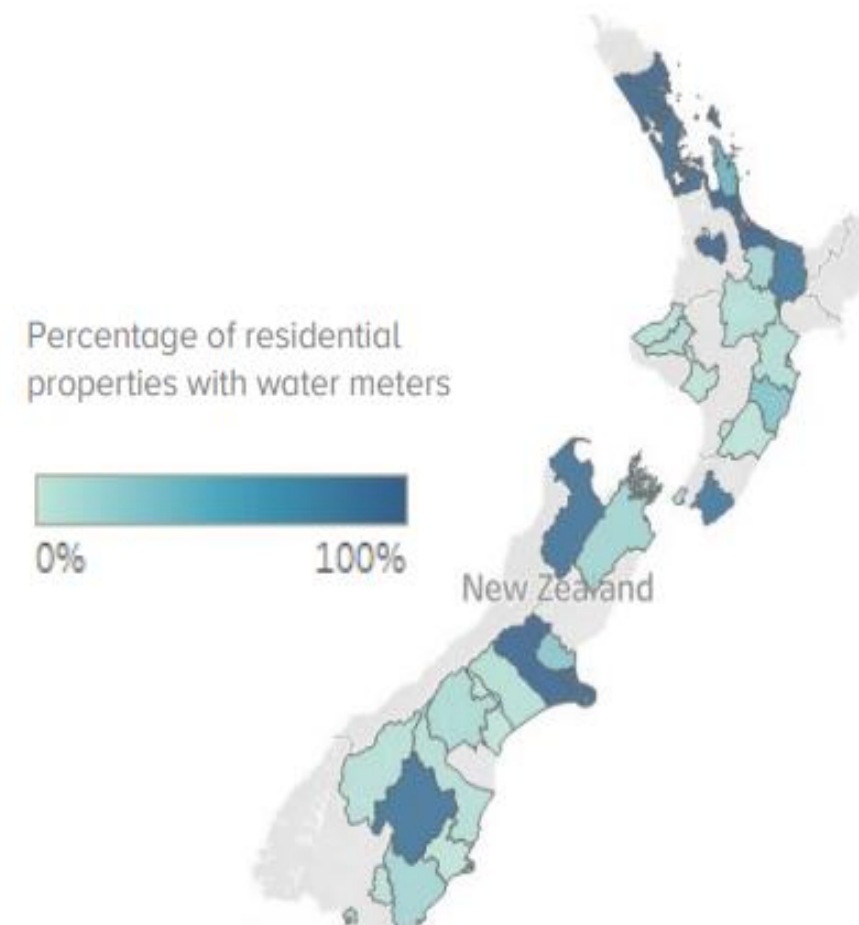
A lot of NZ and overseas are metered

- More than 60% of NZ is metered, including including all of Auckland, Tauranga, and Christchurch
- The other council areas in Entity G is metered (Wairarapa, Kāpiti)
- Used in all major Australian cities (and beyond) with widespread smart meter rollouts underway

It's already part of the discussion

- Recommended in the Te Whaitua te Whanganui-a-Tara Implementation Programme (WIP)
- Recommended by the Wellington City Mayoral Taskforce
- Included in Hutt and Porirua City LTPs

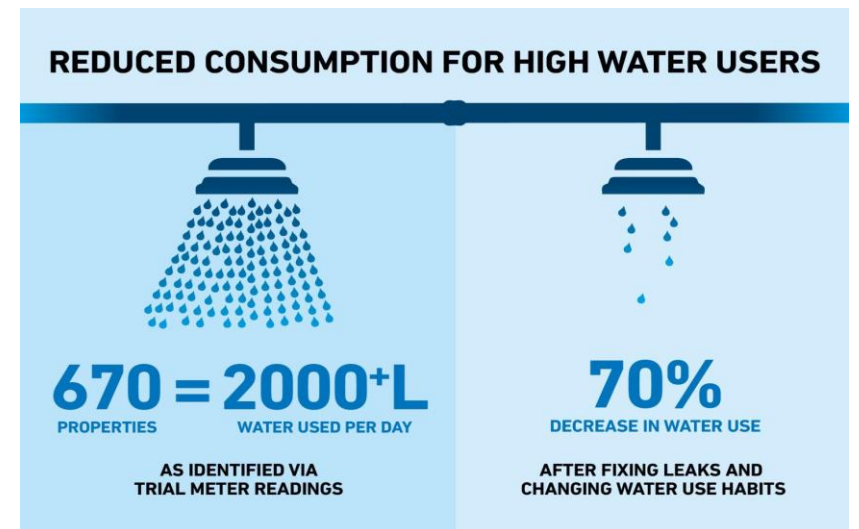
Figure 67: Residential water metering coverage



Metering works

Water use reduction seen in other cities with meters:

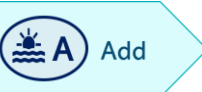
- Auckland has the lowest per capita consumption of all the main centres
- 26% reduction in demand in Kapiti
- 25% reduction in demand in Tauranga
- 20% reduction in demand from Greytown pilot participants
- 65% of residents in Kapiti and Waipa paid less than they did before metering
- Major capital investments were also deferred
- Metered households in England and Wales use **30% less water** than unmetered households





Principles-based
approach

A principles-based approach




We need some principles to drive multi-generational, sustainable outcomes

Break out session 3 –

What overarching principles should we have to guide our work?

Here are some initial starters to help the discussion:

- Water is respected as the giver of life and doesn't become a commodity
- Everyone has enough water to flourish
- Vulnerable communities are not disadvantaged
- Reducing use over building new



Chat in your
groups & enter
your principles in
Slido:

**Slido.com, event
code: #3678421**



Regroup on principles and wrap up

(Presentation 4)

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What principles have we come up with?
Do we all agree?

We are planning for the future

Principles:

1. Urgency – we need to act now
2. Equity and Affordability
3. Bring the community on the journey with us
4. Sustainability and Te Mana o Te Wai
5. Future Proofing



LET'S TAKE A POLL:



Do you support Wellington Water bringing the solutions in Scenario 1 to your councils for your LTP discussions?

















Use slido to vote:

Slido.com, event code: #3678421

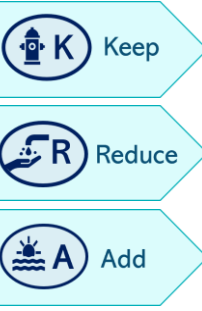
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Poll results



Do you support Wellington Water bringing the solutions in Scenario 1 to your councils for your LTP discussions?

Total of 42 votes:

- Yes – 38
- Maybe – 2
- No – 2

