Watercare's preparedness for drought

a summary

aurecon

Whakahā ngā whakaaro
Kia maia, kia kaha, mahi tahi

Water confidence for Auckland

Auckland is experiencing a severe deficit in its surface water reserves, with reduced summer and autumn inflows to its dams.

Between 1 November 2019 and 30 April 2020, Auckland experienced its worst drought with only half the normal rainfall in its water catchment areas. Dam levels fell from 90% in November 2019 to less than half that by May 2020. The Board of Watercare initiated this high-level review to understand Watercare's preparedness and readiness for current and future droughts. It is timely following heightened interest in the security of Auckland's water supply after low-level water restrictions were triggered by the current drought.

About the review:

Aurecon reviewed Watercare's plans and reports, spoke to a variety of customers and stakeholders, used our experience with similar cities around the world and looked at future risks for the Auckland Region.

Our findings focussed on Watercare's Drought Management Plan, water supply security, drought resilience, preparing and responding to drought and communication, engagement and governance.

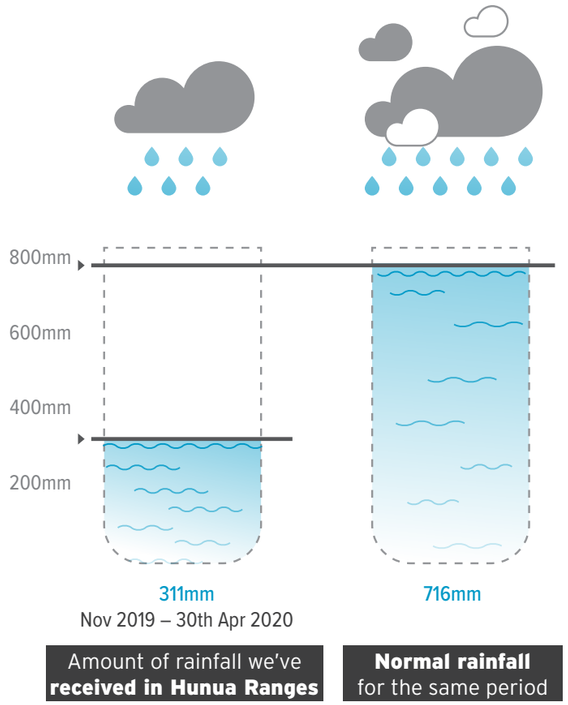
About Watercare

Watercare supplies drinking water to greater Auckland region. It is New Zealand's largest water and wastewater company and is owned by Auckland Council. Watercare's mission is to provide safe, affordable and efficient water and wastewater services.

Every day Watercare supplies more than 400 million litres to 1.7 million Aucklanders and this is increasing with a growing population and economy.

Watercare sources water from dams in the Waitakere and Hunua Ranges, from the Waikato River and from groundwater. It then treats the water and supplies it to homes and businesses by a massive network of pipes, pumps and reservoirs.

Watercare plans, designs, builds, maintains and operates the entire water and wastewater systems for Auckland and recovers most of the cost of this through its water and wastewater charges.



The challenge of droughts

Droughts are a natural occurrence and like many cities around the world, Auckland is not alone in this challenge.

Droughts bring uncertainty; how do we know we are in a drought, when did it start, how long will it last and how serious is it? Cities around the world grapple with these questions to decide how to prepare and respond to droughts. Assuming the worst case or hoping for the best can result in excessive expenditure or severe shortages.

Drought resilience is a shared outcome - the water supplier, the water users and the government working together to achieve an agreed level of drought resilience but this comes at an additional cost to everyone.

A diverse range of sources helps with drought resilience. Dams, lakes, stormwater and rivers are ready sources of water but these depend on climate and rainfall. Recycled water is a little less dependent but there is not enough of it. Sea water desalination is almost independent of climate, but it needs a lot of energy and can have adverse environmental impacts.

Cities around the world have been working out solutions to meet the drought challenge while maintaining reliable, affordable and equitable supply.

Watercare's approach to droughts

Watercare has a Drought Management Plan and an Asset Management Plan for the future, to make sure that Auckland has sufficient water supplies with sensible management of demand.

The city benefits from having diverse water sources in the Auckland and Waikato region, which together provide adequate water security to meet the drought standard.

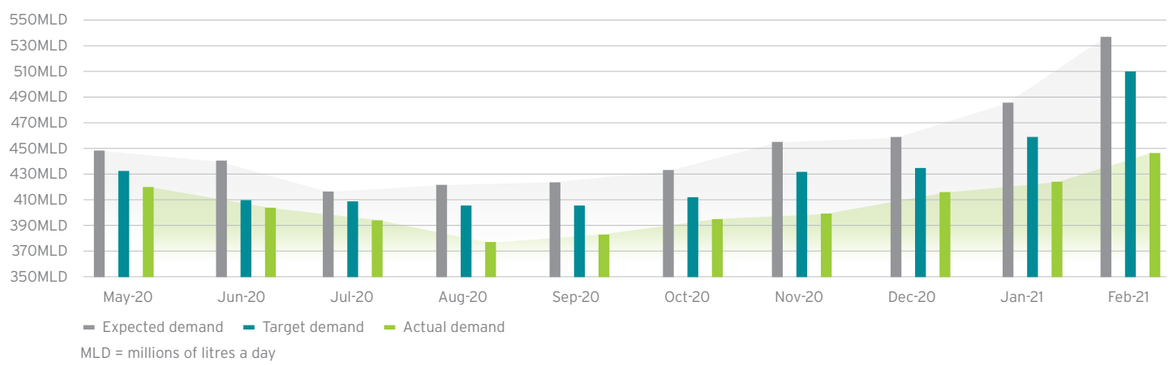
The drought plan is reviewed regularly and the triggers for increasing water supplies and managing water demand are reset as required. Water restrictions are part of a sensible response to droughts, as they reduce demand and stretch water supplies.

By keeping an eye on its storage and weather forecasts, Watercare calculates water supply and demand and then manages the supply system to deliver effectively. When supply levels drop to trigger levels, it takes measured steps to reduce the overall risk to Auckland.

Auckland Council has the responsibility to set the drought standard and approve water restrictions while Watercare has the responsibility to determine the best way of managing water supplies and demand to meet the standard, and to advise council on when to apply and lift restrictions.

This current drought triggered restrictions for Auckland, in accordance with the drought plan.

Aucklanders response to the current drought was exceptional, with demand significantly lower than forecast, as shown in the graph below.



aurecon

What the review found

The review found that Watercare was well prepared and has managed this drought effectively but could do better in some areas.

What Watercare is doing well

it has a range of water sources and is investigating others

it is managing the supply and demand for water well

its people and systems are well prepared to respond when droughts occur

the organisation has matured over the last four years with an increasing focus on customer service

Watercare's response to the drought was timely and it was on track with additional water supplies for a growing Auckland

Where Watercare needs to improve

There were three related areas for improvement which together will build Auckland's drought resilience

creating an Integrated Water Security Programme which clearly sets out for everyone how Auckland will manage its water supply as climate conditions change

being more proactive with Council, businesses and the community to develop a mutual understanding of the roles we all play to ensure water security and how we can support each other to achieve it

work together with Aucklanders to be prepared for future climate conditions and to achieve an agreed level of drought resilience

Q&A

How are droughts managed?

Drought preparedness begins with having an agreed drought standard in place and implementing the actions and investments required to meet the standard. It also needs both a long-term outlook to manage supply and a short-term outlook for agile operational responses.

What is drought resilience?

Drought resilience is a shared outcome- the capability and capacity of the community to live with droughts. It requires local government, water service providers and the community to work together to manage water supply, demand and system operation.

How does my organisation, home or business play a part in drought management?

Everyone in Auckland has an important part to play in drought management. For it to be successful, Watercare, Council, customers and the community need to work together to increase supplies, improve operations and reduce water demand – this is a collective effort.

From forecasting rainfall, managing supply, consenting access, approving investments, conserving water or reducing demand, drought management requires a shared understanding of Auckland's Drought Management Plan and a coordinated response.

The review found there needed to be a high-level of capability, collaboration and resources and that timely communication and early engagement during planning were necessary to ensure that people understand, trust and support the drought measures and responses.

It found wider understanding of Watercare's drought management measures was likely to give people greater confidence in drought management, build drought resilience and create support for drought response measures.

Watercare's customers responded very well to the company's requests to reduce their water use, achieving far greater water savings than expected.

Does Auckland have water security?

The review found that with all the supply and demand measures that Watercare has already initiated, Auckland's long-term water supply security will meet maximum demand (with or without restrictions) every year for the foreseeable future.

Supply measures include access to additional Waikato River flows and recommissioning and augmentation of surface water and groundwater sources. Watercare's modelling shows that over the long-term, the storage capacity and access to Waikato River water is adequate to supply Auckland.

Watercare has started considering climate-independent sources of water for future generations. This includes desalination, purified recycled water and stormwater.

Can we learn from the experience of other global cities to develop drought resilience?

Watercare is an active member of New Zealand and Australian water industry associations and incorporates the learnings of other cities into its everyday practice. In 2019, an external review of water restriction in its Drought Management Plan considered the experiences of other major cities. This is positive and should continue. Many cities have faced droughts, some reaching 'Day Zero', to the point of rationing supply to basic human need of 20 litres per person per day. There are lessons to be shared and adapted as relevant.