



5 September 2019

Professor Tarun Weeramanthri
Climate Health WA Inquiry
Public and Aboriginal Health Division
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PERTH BUSINESS CENTRE WA 6849

Dear Professor Weeramanthri

Climate Health WA Inquiry – Water Corporation Submission

Perth has seen climate change happen faster and earlier than almost any major urban area on the planet. At the same time, urban development and the demand for water are continuing to increase. As the principal water service provider in the State, Water Corporation (the Corporation) plays a key role in tackling this challenge.

The Corporation's vision is to deliver greater value to our customers, community and owner by ensuring that our operations are safe for all, and at the lowest environmental impact and lowest total cost.

What key challenges is Water Corporation facing in relation to climate change?

Persistent climate change in the south west of Western Australia is the most significant challenge that the Corporation and the State's water resource regulators have faced. Streamflow into dams has reduced from an average of 420 billion litres per year, pre-1975, to an average of 72 billion litres over the past five years. This represents an 83% reduction in average streamflow to Perth's dams.

It is projected that winter rainfall will decrease by up to a further 15% by 2030. Average temperatures are also predicted to increase in all seasons. The reduction in rainfall is a key contributor to declining groundwater levels on much of the Swan Coastal Plain. The challenge facing Perth is not only reducing reliance on inflow to dams, but the potential significant reductions to groundwater availability and allocations for both public and private water users.

Maintaining and improving liveability, health and wellbeing as the city grows is a priority for urban communities. Insights gained through Tap In, our extensive community engagement program, indicate the highest priority customer issues in metropolitan areas include maintaining a reliable supply of water services; reducing wastage of water; minimising pollution of Perth's waterways; increasing recycling and improving water efficiency. These community priorities strongly align with the objectives of a waterwise city. The community and other stakeholders expect the Corporation to go beyond its core services and make the most of all opportunities across the urban water cycle, and deliver greater community benefit.

How have we adapted to meet these challenges?

Fluctuating rainfall patterns can directly impact on the provision of safe drinking water which in turn impacts public health. Heavy rainfall and flooding can increase disease transmission, while dry conditions may lead to increased salinity, or use of higher risk source water options.

Two guiding principles of the Australian Drinking Water Guidelines (ADWG) advise that, “any sudden or extreme change in water quality, flow or environmental conditions (e.g. extreme rainfall or flooding) should arouse suspicion that drinking water might become contaminated”, and that “system operators must be able to respond quickly and effectively to adverse monitoring signals”. The Corporation is committed to delivering safe drinking water to maintain public health in accordance with the principles within the ADWG. We operate over 250 schemes across the State, with robust multiple barriers to manage microbiological and chemical challenges identified through our continuous risk management processes.

Many drinking water schemes across WA rely on surface water sources for supply. The impact of climate change on surface water catchments may result in reduced water quality from the effects of bushfires, reduced environmental flows and river health, changes to biodiversity and catchment vegetation, erosion in waterways and algal blooms.

The Corporation recognises the benefit of catchment management as an effective barrier to monitor and control events that may impact on surface water sources, including the effects of climate change. Together with DWER we engage with Shires and land owners to advocate the importance of source protection in ensuring healthy catchments and safe water supplies to the community.

As climate change continues to challenge our water supply systems it is important to develop climate resilience through our planning processes, as well as design and monitor water quality performance from catchment to tap. Climate change impacts our ability to plan for high quality sources with demand security, which can push us into higher risk water quality sources. The Corporation is able to manage these challenges through application of our Drinking Water Quality Framework, including an overarching commitment to drinking water quality management, to ensure we continue to provide safe drinking water.

Some key projects the Corporation has developed to meet these challenges include our ongoing work with regulators to demonstrate health and environmental compliance with our Groundwater Replenishment Scheme (GWRS), and the integration of two desalination plants delivering safe drinking water into our Perth and south-west schemes.

The record low rainfall in 2001 prompted the development of the 2003 State Water Strategy, which resulted in a strong focus on water efficiency, recycling and new water sources – such as seawater desalination. WA’s first desalination plant was built in 2006, and a second was added in 2011. Together, they now provide around half of Perth’s drinking water supply.

Increased reuse and recycling is an ongoing focus for the Corporation to meet the challenges of climate change. Recycled water can be used to supplement demand on water resources and replenish drinking water aquifers as in the case with our GWRS. The Corporation’s Wastewater Recycling Policy outlines our commitment to sustainable management of Western Australia’s limited water resources by maximising wastewater recycling and by providing a framework for the management of wastewater recycling schemes.

We have 75 recycling schemes supplying recycled water for industrial reuse and irrigation of public open spaces. Through working with local Shires, the Corporation is enhancing community mental health and well-being via the availability of green open spaces using recycled water resources.

Over the last two decades, there has been a strong response to climate change through the construction of a more resilient water supply scheme for Perth. We have planned ahead to secure water supplies in our changing climate, producing 50-year plans (Water Forever 2009) and a 10-year plan (Water Forever 2011). As well as expanding seawater desalination plants and the groundwater replenishment scheme, we are progressively shifting groundwater abstraction to deeper aquifers and are working with the community to reduce water use.

What key initiatives have we identified to address climate change?

A key initiative towards meeting our vision and delivering on our corporate objective of "Lowest Environmental Impact" is via our Water for Life Action Plan (2018). There are a number of initiatives outlined within this action plan that are designed to meet the challenges presented by climate change, including programs undertaking **water services planning**. One program is the Perth and Peel Integrated Water Services Plan project, which aims to develop an integrated tactical plan for water, wastewater and drainage services to meet the needs of the growing population in the Perth-Peel Region to 2050.

Water we can secure from traditional, climate dependent sources such as groundwater aquifers and dams continues to decline – impacting both drinking and non-drinking water supplies, for example bores used to irrigate public open space. The expansion of the Groundwater Replenishment Scheme in 2019 from 14 to 28 billion litres per year is an example of finding smarter ways to access, utilise and supplement all our water sources, as is the use of treated wastewater to irrigate public open space in Perth and regional areas.

New water sources are only one component of our initiatives to address climate change. **Community engagement** is another significant element where we continue to invest in programs to encourage efficient water use by residential customers, industry and local councils. By using engagement processes such as "Tap In" the Corporation will incorporate the community's priorities in our future planning and help to defer the need for new water sources for as long as reasonably possible.

Whilst we have been successful in developing new climate independent water sources, such as desalination and groundwater replenishment, and as a community we have made significant reductions in per capita use of scheme water, there is more to be done. Greater community engagement and collaboration across all stakeholders is required to find innovative solutions to emerging water challenges, balance supply and demand in the total water cycle and develop an urban form that is in harmony with, and enhanced by, its water environment.

As part of our Water for Life action plan, the Corporation will influence, partner with and lead various actions to support Perth's transition to a waterwise city under the following five objectives:

1. Collaborate and form partnerships to deliver waterwise outcomes
2. Engage with our customers to improve water knowledge and reduce demand
3. Increase reuse, recovery and recycling
4. Optimise the relationship between water and energy and reduce carbon footprint
5. Enhance water resource assets to improve liveability outcomes

While these objectives provide an overview of our strategic direction that will enable us to deliver on our overall corporate vision, we view the following as being critical in achieving public health benefits in line with the purpose of this Inquiry.

- Collaborative land use planning across the urban water cycle to influence community expectations
- Water efficiency to reduce scheme water use without impacting on quality, lifestyle and amenity
- Increased recycled and alternative water to contribute to supply and respond to demand
- Continue non-visible and other leak detection programs and repairs
- We have a goal to reduce greenhouse gas emissions to net-zero by 2030, to help reduce global warming and improve air quality
- Increase access to green space and deliver enhanced liveability outcomes to local communities

As an industry partner of the Water Services Association of Australia (WSAA), the Corporation actively collaborates on a wide variety of issues affecting the water industry, including climate change. A recent report out of WSAA on the "Health benefits from water centric liveable communities" (2019) outlined links between water industry investment and liveability-related health outcomes attributed to integrating the management of water, land and related resources.

The report focused on four key health pathways to improve community health including more active recreation, more exposure to greenspace, reduced temperatures from Urban Heat Islands, and lower air pollution. A key message from the report describes how investments in "Integrated Water Catchment Management" can improve health outcomes for the community by improving access to amenable green and blue spaces.

Deterioration of asset life due to extreme climate events or long-term water quality and quantity change is also of concern for the water industry. The Corporation is currently partnered with other industry members through WaterRA to develop a robust climate-change decision support framework for water utilities. It is anticipated that the outcomes of this project will improve the Corporation's asset investment decision framework to incorporate better climate adaptation planning and to better manage uncertainty when developing strategic investment plans.

What support can Water Corporation contribute towards the inquiry?

As the principal provider of water, wastewater and drainage services in Western Australia, the Corporation can lead the use of water management as a means to improved liveability outcomes. This includes broader community benefits in relation to water security, flood risk, biodiversity, public open space, healthy waterways and productive and connected communities.

The Corporation is able to collectively quantify and manage water related issues relevant to climate change both locally and State-wide as we have the resourcing and technical capability. We are also able to create solutions across local government boundaries to benefit communities through climate health and improved water quality performance.

The Corporation supports the Sustainable Health Review (2019) in that “courage, collaboration and system thinking are needed to change how health care is delivered in WA for a healthier, more sustainable future”. Of the eight Enduring Strategies delivered in the review we would be particularly well placed to support, engage with:

- **Strategy 1.3c** – People living in low socioeconomic conditions.
- **Strategy 1.5** – Reduce the health system’s environmental footprint and ensure mitigation and adaptation strategies are in place to respond to the health impacts and risks of climate change. Set ongoing targets and measures aligned with established national and international goals.

Water Corporation is mindful that the *Department of Water and Environmental Regulation* intends to release a Climate Change Issues Paper which will subsequently inform the State Government’s approach to climate policy. The Corporation intends to engage across whole-of-government on emerging climate policy in this State, including the Department of Health, as we collectively transition Perth towards a more waterwise, liveable city.

The Corporation would welcome the opportunity to further collaborate with Department of Health and other government and industry stakeholders to support the development of climate change vulnerability assessments, and a Climate Change Adaptation Plan in accordance with our corporate vision and initiatives outlined in this submission.

Please contact Ms Rachael Miller, Head of Water Quality Business Unit, for any further questions regarding this submission at [REDACTED]

Yours sincerely

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Pat Donovan
CHIEF EXECUTIVE OFFICER