



WATER SERVICES
ASSOCIATION OF AUSTRALIA

URBAN WATER INDUSTRY CLIMATE CHANGE POSITION

MAY 2022



About WSAA

Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry. Our members provide water and sewerage services to over 24 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

ISBN 978 0 6450026 3 8

Disclaimer

This report is issued by the Water Services Association of Australia Ltd and individual contributors are not responsible for the results of any action taken on the basis of information in this report, nor any errors or omissions. While every effort has been made to ensure the accuracy of that information, the Water Services Association of Australia (WSAA) does not make any claim, express or implied, regarding it.

Copyright

© Water Services Association of Australia Ltd, 2022

ALL RIGHTS RESERVED

This document is copyrighted. Apart from any use as permitted under the Copyright Act 1968, no part of this document may be reproduced or transmitted in any form or by any means, electronically or mechanical, for any purpose, without the express written permission of the Water Services Association of Australia Ltd.

For more information please contact info@wsaa.asn.au

The climate is changing and so are we

The urban water industry will achieve net zero greenhouse gas emissions by 2050. In many cases we are achieving net zero much sooner than 2050.

The water industry is uniquely positioned to mitigate our impact on our climate, respond and adapt to the impacts of a changing climate on the delivery of our services, and improve the resilience of our communities and the environment in adapting to a changing climate.

Through collaboration and partnership with our customers, communities, Aboriginal and Torres Strait Islander peoples, the Māori people, government stakeholders and other sectors, the urban water industry also commits to:

- Reduce water loss in our networks and encourage our customers to value efficient and effective water use.
- Strengthen economic and environmental resilience through smarter and better use of water, infrastructure, and holistic adaptation to climate change.
- Develop lasting relationships with Indigenous communities and businesses to ensure a partnership and stewardship approach to our shared challenges in water resource management.
- Leverage our unique advantage in water management to improve climate adaptation and urban liveability through green, cool and healthy environments.
- Implement circular economy principles in managing resources including water, waste, energy and natural capital, to foster the transition to a more circular future.
- Support healthy waterways to restore and regenerate ecological and community values.
- Engage with customers and partner with communities and other sectors to build understanding of the trade-offs and cascading risks arising from our interdependencies, to achieve a balance between climate change costs and outcomes, including the needs of future generations.

THE CLIMATE IS ALREADY CHANGING



The climates of Australia and New Zealand have already warmed on average by between 1.1 and 1.4 degrees. Both nations will continue to experience ongoing changes to climate, and are projected to see:

- more variable rainfall patterns and river and dam inflows
- continued increases in air temperatures, more heat extremes and fewer cold extremes
- more frequent and intense storms
- a consequential increase in the number of dangerous fire weather days and a longer fire season for southern and eastern Australia, and New Zealand
- sea level rise of at least 0.5m and up to 1m by 2100, with further sea level rise locked in for centuries.

Climate change poses a number of risks to the urban water industry, including by:

- reducing the availability of water for cities and communities
- affecting the condition and reducing the performance of water industry infrastructure
- reducing water quality in urban waterways and receiving waters.

We support using science to inform our decision-making on climate change mitigation and adaptation.

Sources:

BOM and CSIRO 2020. State of the Climate 2020. November 2020. <http://www.bom.gov.au/state-of-the-climate/>
Ministry for the Environment & Stats NZ 2020. New Zealand's Environmental Reporting Series: Our atmosphere and climate 2020 <https://www.mfe.govt.nz/publications/environmental-reporting/our-atmosphere-and-climate-2020>

Our position

Net zero greenhouse gas emissions by 2050 or earlier

To contribute to global and national efforts to limit climate change by keeping global temperature rise this century well below 2 degrees Celsius, and preferably to 1.5 degrees Celsius, the urban water industry will achieve net zero greenhouse gas emissions at the latest by 2050.

Increasingly our shareholders, customers and communities are even more ambitious and want us to achieve this target much earlier than 2050. Many of our businesses are also already demonstrating global leadership on emissions reduction. We will work with our customers and communities to balance the costs of achieving net zero emissions with affordability for customers and the cost of emissions impacting future generations.

Water utilities contribute to climate change through greenhouse gas emissions:

- Scope 1 - Directly produced as a result of water and wastewater treatment
- Scope 2 - Indirectly produced by using energy in the production, transport and treatment of water and wastewater
- Scope 3 - Indirectly arising from supply chain and other business activities.

The UN calls climate change a 'code red for humanity'. While water utilities face different circumstances, capacity and capabilities, the industry will continue to partner together and collaborate with stakeholders, incorporating emerging research, to meet the challenges of a changing climate.

We will achieve net zero greenhouse gas emissions by pursuing opportunities such as:

- Avoiding energy use and emissions through innovative smart design of new and renewed water and wastewater assets
- Minimising energy and emissions through efficiency and optimisation of pumps and the way we operate our systems
- Recovering and generating renewable energy (e.g. wind, solar, biogas, hydrogen) and local upcycled materials (e.g. soil conditioner, biochar) from our activities
- Substituting emissions-intensive energy with zero-emissions renewable energy sources
- Embrace new technologies and innovative solutions that reduce emissions, such as utilising climate adaptation measures as an enabler for mitigation
- Sequestering carbon (e.g. native forests or wetlands on land managed by water utilities)
- Offsetting residual emissions, using local offsets where possible and exploring initiatives that enhance liveability and climate change adaptation for our communities and environment.



Conserving water by reducing water loss in our networks and encouraging our customers to value efficient and effective water use.

A significant amount of energy is consumed in the capture, treatment and delivery of water throughout Australia and New Zealand's cities and communities.

The urban water industry will continue to manage leakage to conserve water, reducing energy use and greenhouse gas emissions. Water utilities' non-revenue water losses are among some of the lowest levels in the world.

Water utilities will continue to use different strategies to reduce leakage including:

- Pressure management: Reduction of excess average and maximum pressures.
- Active leakage control: Monitoring of flows in metered areas to identify leaks and repair before they become a greater issue.
- Pipeline and assets management: Material selection, installation, maintenance, rehabilitation and replacement.

- Speed and quality of repairs: Repairs done quickly and to a suitable standard.

With many established programs across Australia and New Zealand, water utilities will continue to help customers value all types of water and ensure their water use is fit for purpose and effective. This will involve education, communication, training, auditing and innovation, aimed at improving climate and water literacy.

In addition to reducing demand for water, utility energy use and greenhouse gas emissions, increasing household water efficiency generally reduces greenhouse gas emissions generated by customers, particularly where water efficient appliances are installed on hot water taps and showers.



Strengthen economic and environmental resilience through smarter and better use of water, infrastructure, and holistic adaptation to climate change.

Due to climate change Australian and New Zealand water supplies are facing increasingly variable rainfall and inflows into rivers and dams, where our reliance on rainfall dependent water supply options is a risk to the water security of our cities and communities. As the climate continues to shift and population grows and changes, the urban water industry will optimise the use and investment in a diverse portfolio of water supply sources.

Since the Millennium Drought, many in the urban water industry have worked to secure climate resilient sources of water through both supply side (e.g. desalination, recycled water) and demand side (e.g. leakage reduction, water efficiency) initiatives. We will continue to diversify our water sources using an integrated water management approach with all options on the table including purified recycled water, stormwater and desalination.

Optimising the use of multiple rainfall dependent and independent sources increases our ability to balance resilience, security, cost and other network constraints, while also meeting the diverse and evolving expectations of our customers and communities. Balancing supply and demand efficiently requires us to consider a wide range of water supply and demand management options.

Climate change will also mean drinking water quality management will become more challenging. The urban water industry will optimise drinking water quality through adoption of new technologies and active management of environmental pathogens, disinfection by-products and trace substances.



Develop lasting relationships with Indigenous communities and businesses to ensure a partnership and stewardship approach to our shared challenges in water resource management.

Climate change may impact water availability or damage places of significance through reduced or intermittent streamflow, hotter temperatures, flooding, or erosion of culturally significant sites.

We will manage this by partnering with Indigenous groups, involving them in decision making that affects them, improving equity in service provision, and harnessing and integrating Indigenous knowledge and practices in our climate adaptation work.

Aboriginal and Torres Strait Islander Peoples and Tangata Whenua Māori can enhance effective climate change adaptation through the passing down of knowledge of Country and techniques that promote collective action and mutual understanding.

Indigenous knowledge provides a foundation for community-based adaptation and mitigation actions. We commit to developing relationships and meaningful, mutually beneficial partnerships with Aboriginal and Torres Strait Islander peoples and the Māori people, to support progress towards their self-

determination and for the benefit of all our customers and communities.

Improving access to cultural water for Aboriginal and Torres Strait Islander peoples and the Māori people will help support progress towards their self-determination and provide opportunities for economic development. The water industry now increasingly understands that Aboriginal and Torres Strait Islander peoples and New Zealand's Māori people have cultural and spiritual connections to water through their associations and relationship with ancestral lands and that connectedness to water is important for health and wellbeing and therefore must be protected.

In Australia, we recognise Aboriginal and Torres Strait Islander peoples have the longest living cultures in the world, and have been stewards of land and water over thousands of generations. They have adapted to Australia's climatic cycles and have developed the ability to find and re-find water in a dry landscape; this is made possible through a complex system of oral stories, song and dreaming. Aboriginal people value water as sacred and essential for survival.

It is protected by Lore, which provides a system of sustainable management to ensure a healthy people. Aboriginal people's connection with Country does not separate individual features of the landscape, in stark contrast to non-Aboriginal laws and traditions. [1]

In New Zealand, we recognise the importance of Te Tiriti o Waitangi (the Treaty of Waitangi), giving effect to the principles that have been established. In particular the principle of Rangatiratanga which provides the Māori people with authority over resources such as lands, waterways, forests etc. The Māori people hold the value of kaitiakitanga (to be guardians

or protectors). This includes considerations at the physical as well as spiritual level. These environmental and spiritual ties are connected to all things including the ancestral lands, water, waahi tapu (sacred areas) and other taonga (treasures) as well as the wellbeing of the entire taiao (environment) and iwi (people/tribes).

Leverage our unique advantage in water management to improve climate adaptation and urban liveability through green, cool and healthy environments.

The water industry has a strong reputation for contributing to the liveability of Australian and New Zealand urban communities by providing safe, secure and affordable drinking water, wastewater and drainage services.

Investing in water-enabled green and blue infrastructure can deliver benefits to physical and mental health by making our communities cooler, healthier and more attractive places to live, work and play.

The water industry will increase our contribution to green, cool and healthy environments, providing resilience to the impacts of climate change by:

- Providing water and land for green infrastructure including green parks, open space and corridors to support active, healthy lifestyles.

- Supporting blue infrastructure including clean, healthy beaches and waterways with community and ecosystem benefits, including tourism and healthy lifestyles.
- Supporting cool, healthy environments by using water and greening to reduce heat in the urban landscape, providing resilience to chronic and acute heat events and improving air quality.
- Supporting the community through engagement, education, hardship programs and other initiatives.

To achieve this commitment, the water industry will strengthen our capacity to better partner and collaborate with all levels of government, other sectors, and continue to engage with our customers and communities to meet their needs.



[1] Source: Moggridge B 2010, Aboriginal Water Knowledge & Connections, in: Water and its Interdependencies in the Australian Economy, 22 to 23 June 2010, Australian Academy of Technological Sciences and Engineering, Sydney.

Implement circular economy principles in managing resources including water, waste, energy and natural capital, to foster the transition to a more circular future.

The circular economy model is an alternative to a linear economy (take, make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life.

Circular economy is based on three principles:

- Design out waste and pollution
- Keep products and materials in use
- Regenerate natural systems.

Opportunities abound to apply the circular economy principles across the roles that water takes: as a resource, nutrient carrier, carbon stream and source of energy. The demands on these roles are set to increase exponentially with population increase, urbanisation and climate change.

Designing out waste

- Designing for the most efficient amounts of energy, raw materials and chemicals to be used in the delivery of water services.
- Optimising the amount of water used to deliver efficient customer services and benefits.
- Designing best value use of water wherever possible.

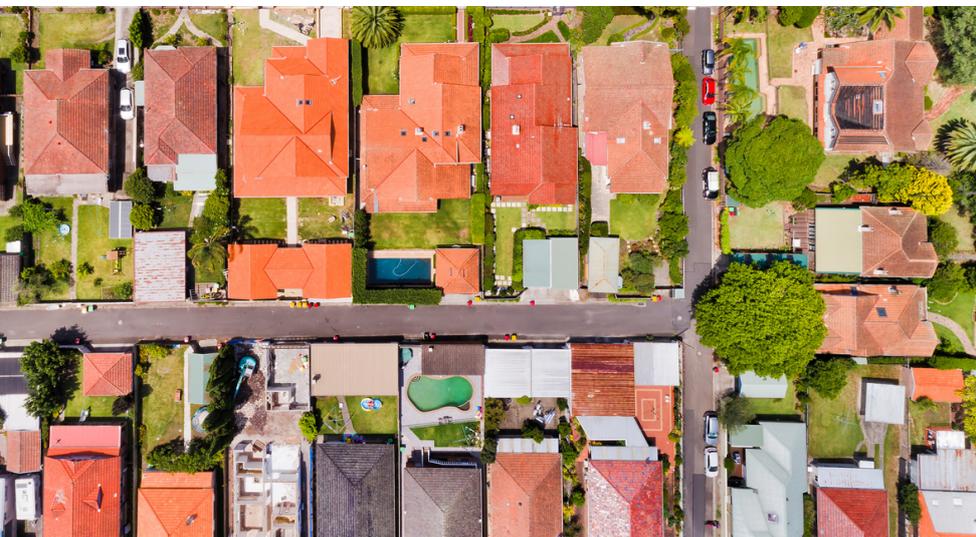
- Unlocking even more value from our assets through initiatives such as renewable energy generation, waste management and resource recovery.

Keep resources in use

- Maximising the reuse and recycling of water and input resources, including waste management and resource recovery.
- Optimising the use and extraction of energy, nutrients, minerals and chemicals.
- Maximise opportunities for recycling biosolids and using them in beneficial ways.

Regenerate natural systems

- Minimising water extraction from the environment by reducing water loss, utilising recycled water and working with our customers and communities to increase water conservation.
- Returning treated wastewater to waterways where viable and best value.
- Support regeneration of the natural and urban environment by maintaining water in the landscape for greening and cooling.
- Minimising disruption to natural waterways through preventing pollution and improving the quality of discharge effluents.



Supporting healthy waterways to restore and regenerate ecological and community values.

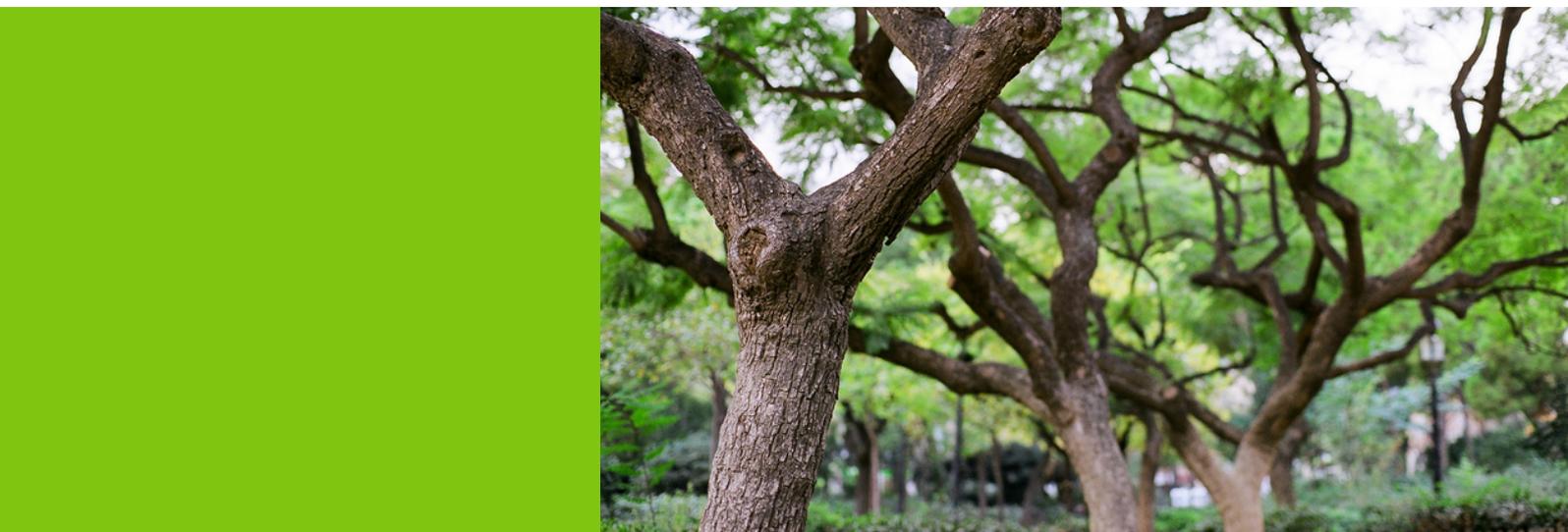
Our rivers, creeks, wetlands, floodplains, aquifers, estuaries, bays and oceans are significant to the Aboriginal and Torres Strait Islander peoples, the Māori people, local communities, environment and economic prosperity. Water utilities and other agencies manage waterways within the urban water cycle.

As the climate changes waterways are expected to be impacted by increasing temperature and increasingly variable rainfall leading to drought and floods, severe weather events and bushfires. We need to invest in management actions to ensure the beneficial uses of these waterways, such as drinking water provision, fisheries, tourism and recreation, are protected and enhanced.

We will contribute to the protection and restoration of our waterways, establish healthy ecosystems and enhance biodiversity by pursuing opportunities such as:

- Managing the wastewater of our communities to reduce nutrients and other pollutants discharged to waterways.
- Minimising water extraction from the environment by reducing water loss, utilising recycled water and working with our customers and communities to increase water conservation.

- Extracting nutrients from waterways by creating living streams.
- Enhancing environmental flows and cultural flows [2] where critically needed through collaborative targeted local programs.
- Protecting or enhancing significant species in catchments, culturally significant species and water values, and minimising vegetation clearance.
- Partnering with private landowners, farmers, community groups and land management agencies to restore and protect our waterways by funding on-ground management works such as fencing waterways to exclude stock, weed control, revegetation works, whole-farm planning, and nutrient and sediment reduction works.
- Investing in research to help us understand the size of our environmental footprint in waterways and how we can achieve a positive impact on our waterways. We will then implement our findings.



[2] Cultural flows are water entitlements that are legally and beneficially owned by Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations. This is our inherent right. This definition was endorsed by representatives from thirty-one Indigenous nations at a joint meeting of the Murray Lower Darling River Indigenous Nations (MLDRIN) and the Northern Basin Aboriginal Nations (NBAN) -The Echuca Declaration, September 2010 (National Cultural Flows Research Project, 2016).

Engage with customers and partner with communities and other sectors to build understanding of the trade-offs and cascading risks arising from our interdependencies, to achieve a balance between climate change costs and outcomes, including the needs of future generations.

The urban water industry recognises the importance of understanding the needs and expectations of its customers and communities.

We will engage with our customers, and partner with our communities, Aboriginal and Torres Strait Islander peoples and the Māori people, as well as other sectors, to guide our climate change mitigation and adaptation responses. We will:

- Work with our community to value, conserve and wisely use water.
- Facilitate greater understanding of the cause and effects of climate change, the range of possible responses and their associated trade-offs, costs and benefits.
- Commit to managing climate change risks responsibly when making decisions in relation to long term lifecycles of assets.

- Ensure customer affordability implications are both transparent and flexible when investing in climate change responses.
- Collaborate and work in partnership with governments and other sectors to understand and manage cascading risks arising from our interdependencies, and enhance complementary actions.

We will work with our customers and communities to balance the costs of mitigating and adapting to a changing climate with affordability for customers and the cost of climate change impacting future generations.



Mitigation and adaptation to climate change is an ongoing process and we will review and revise this statement regularly to stay relevant in this rapidly evolving area.

