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SUBMISSION TO DRAFT GREATER SYDNEY WATER STRATEGY

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry in Australia and New Zealand. Our members include the water utilities supplying water and wastewater services to over 24 million customers.

We commend the NSW Department of Planning, Industry and Environment (DPIE) and Sydney Water on the development of the Draft Greater Sydney Water Strategy. In our view, the Draft Strategy incorporates many 'best practice' elements of water planning.

There are several elements on which we would like to comment specifically.

We commend the 'all options on the table' approach

We support the 'all options are on the table' planning approach, of investigating all options including dams, desalination, recycled water for irrigation, purified recycled water for drinking, groundwater, and water conservation. All water supply options can make a contribution to water security and liveability.

This approach is well recognised, for example it has been a principle of the National Water Initiative ever since 2008. It has recently been publicly reiterated by the [Federal](#) and [NSW Productivity Commission](#); [Infrastructure Australia](#); [Infrastructure Victoria](#), and the [NSW Water Strategy](#), which all emphasise that all options should be looked at and there should be no 'policy bans' on options.

Policy bans have sometimes occurred in the past, particularly on purified recycled water for drinking. They may arise from historic situations when this option encountered community resistance. However, in the decade or so since the Millennium drought, the number of cities around the world using purified recycled water as part of the drinking water supply has doubled, and dozens more are now considering it.

A great deal is now known about how to go on a journey with the community to reach acceptance. This should begin by explaining the water cycle, that all water is recycled, and that this water supply option simply speeds up what nature intended. Sometimes in today's world, the community is less aware that water that has been used by communities is treated carefully and released back into the environment to begin the cycle again, and be used by other communities. The lessons from other cities have shown that with time and information, people see it as a valuable component of a robust water supply.

We support the shift towards climate-resilient, rainfall-independent options

The Draft Strategy also recognises the need for climate resilience in water supplies. As evidenced by the recent IPCC Assessment Report 6 on climate change, the Australian climate in general is getting hotter, and rainfall more variable. Dams have generally been the backbone of our water supplies in Australia, but this Draft Strategy recognises the need to complement dams with other sources of water that are not dependent on rainfall, such as desalination, recycled water and purified recycled water for drinking.

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We have seen a strong shift around Australia and the world towards diversifying traditional water supplies with options like purified recycled water for drinking. Purified recycled water drinking schemes exist in Perth, Brisbane, California and other parts of the US, Europe and Africa. Desalination is also widely used in the Middle East and in many Australian capital cities. Perth uses both desalination and purified recycled water, and the capacity of Perth's purified recycled water Groundwater Replenishment Scheme is currently being doubled. In Australia, it is likely that non-rainfall dependent options will play an increasing role in future.

Diversification provides resilience

Diversifying by including rainfall-independent options sets Sydney up well for the future. Having a mix of supply sources means not 'putting all our eggs in one basket'. Options like desalination and purified recycled water will mean Sydney is prepared for the future, by being able to access seawater through desalination and re-use the existing water supplies, through recycling. This will help cater for growth, as well as uncertain weather conditions.

The Draft Strategy also ensures that as a first step, we use the water we have wisely – through encouraging water-wise behaviours. This should always be the foundation underpinning water supply management.

We support the inclusion of purified recycled water for drinking and the demonstration plant

Supplementing the water supply with purified recycled water is a safe, proven option with many environmental benefits. Other cities with similar contexts to Sydney have adopted or are exploring it. All water is recycled, and purifying recycled water simply uses innovative technology to clean all impurities and produce drinking water that meets or exceeds strict health and safety standards. In addition, it is climate-resilient, like desalination. Purified recycled water takes less water from the environment, and puts less nutrients back into waterways. It is a great step forward that it is included in the Draft Strategy.

Building a demonstration plant for purified recycled water for drinking is an excellent next step. A demonstration plant lets both communities and regulators see how the purification processes work, and the robust testing and monitoring that goes along with ensuring any new water supply option meets our strict health and safety guidelines, before any decisions are made. It is an excellent 'no-regrets' step to help Sydney be prepared for the future.

Demonstration plants have proved a vital part of the journey for many of the cities around the world that have adopted purified recycled water. WSAA's report [*All Options on the Table – Lessons from the Journeys of Others*](#) outlines that 'seeing is believing' – a demonstration plant allows communities, stakeholders and regulators to see the innovative advanced water filtration plant in action, ask questions, and learn about it.

WSAA strongly recommends that the NSW Government uses the demonstration plant as an opportunity to showcase and prove a carbon-based treatment train as well as a reverse osmosis treatment train. Carbon trains are low energy, and produce minimal waste streams, which makes them well suited to inland communities. In an arid country like Australia, many inland cities are likely to turn to purified recycled water in the future, as desalination is not an available option for them.

If a large and well-resourced water utility such as Sydney Water could run a demonstration plant now, that would lay an excellent foundation for inland cities in the future. This may require government intervention or funding, because such an investment would benefit the whole state. During the last drought, a number of towns wanted to explore purified recycled water as their water supplies dwindled, but there was insufficient time to establish and prove such schemes. Should similar conditions arise again, NSW will be much better prepared having demonstrated and confirmed carbon treatment processes that could be deployed widely in future.

We support the arguments for a more streamlined and coordinated approach to stormwater

We agree that better use can be made of stormwater to support a highly liveable city. We support the use of enhanced stormwater management and harvesting and recycled water schemes as part of increasing a rainfall independent supply capacity.

In relation to models of governance for stormwater management, integrating stormwater into the urban water cycle is fundamental to good water security and liveability outcomes, yet success on this front across the country is characterised by ad hoc collaboration rather than a systematic approach. Our position is that consideration should be given to the development of single waterway managers with responsibilities to include stormwater in the water security and liveability outcomes being sought.

The Productivity Commission's paper [Urban Water Cycle Management: why a good idea is hard to implement](#) identified the key obstacles and impediments to effective stormwater management and gaps that are limiting integrated urban water cycle management and WSAA agrees.

Current institutional arrangements have resulted in complicated governance arrangements where no one party has full responsibility for managing all aspects of the urban water cycle. Clearer governance principles that confirm roles and responsibilities and collaborative frameworks would assist in improving liveability outcomes.

Community engagement has been initiated

We support the early consultation that has now begun, to understand the community's views, values, questions and priorities. Communities have crossed many frontiers with the water industry as we adopt new technologies that help us best manage our water resources, and it is vital to proceed hand in hand with our customers and communities.

Community views are not static. Very little community information and engagement has been provided before this Draft Strategy. There is ample evidence that providing information will increase understanding and acceptance of so-called 'new' water supply options, like desalination and purified recycled water. Some excerpts are provided at Attachment A.

We encourage and support community information and engagement programs now being implemented. This needs to be broader than just the demonstration plant and should involve a range of grass roots communications and education activities. WSAA has released a [Purified recycled water toolkit](#) with many education guides and resources.

Clear information and language are important

Information and education need to explain the reasons and benefits of considering non-rainfall-dependent water supply options, and reiterate that water purification produces water that meets or exceeds drinking water standards. Language choices matter and influence perceptions.

One of the most famous statements in the water industry is that water should be judged not by its history, but by its quality. Given that there has been virtually no education prior to this survey, the results of this question should be considered with caution and taken as a baseline at best.

The Draft Strategy is somewhat inconsistent in its use of the term purified recycled water. Other jurisdictions in Australia and overseas have used the term 'purified' to convey that the water is treated to a higher level of purity than recycled water which is used for urban cooling, greening and irrigation. The additional purification process brings it to drinking water standard. Such high treatment is not needed for irrigation, cooling and greening applications. The mentions of using purified recycled water for these purposes confuses the issue – it would be

better to use purified recycled water when referring to water has been treated to meet or exceed drinking water standards, and recycled water for non-drinking purposes.

The community is open to considering purified recycled water for drinking

In July/August 2021 WSAA surveyed around 8,600 people across Australia and New Zealand and found that 3 in 4 people (74%) are open to purified recycled water being considered as part of our future drinking water supply. NSW was even higher at 76%.

In addition, more than 1 in 2 people (58%) are interested in hearing about how alternative water sources can be purified to drinking water quality.

Are you open to purified recycled water also being considered as part of our future drinking water supply?



Are you interested in hearing about how the water industry can purify water from various sources to drinking water quality or better?



There has been virtually no public education or engagement on this topic before the release of the Draft Strategy. It is well established that providing information will increase levels of acceptance of so-called 'new' water supply options. For this many people to indicate an openness to purified recycled water for drinking, and an interest in learning more, indicates there is a notable baseline of support already, even without education.

We support integrated water management approaches to achieve a liveable environment

We support the consideration of alternative sources of water such as stormwater, for irrigation of parks and other spaces. An Integrated Water Cycle Management (IWCM) approach generates environmental, social and financial benefits and can improve liveability outcomes keeping cities green and cool, enabling passive and active recreation, providing biodiversity benefits and improving neighbourhood amenity even in times of drought.

IWCM also helps address the impacts of climate change, as more water in the environment will help to counter hotter and drier weather as forecast by the IPCC report. Fit for purpose water can enable better tree coverage which allows more absorption of greenhouse gases.

However, recycled water may be most suited to large scale recycling and use such as purified recycled water for drinking, because the economies of scale make it more economical to treat recycled water to drinking water standard than having to create a separate distribution system entirely for non-drinking water. As such stormwater is likely to be very suitable for the purposes of localised irrigation of green spaces.

We support the circular economy approaches being incorporated

Sydney Water has already shown great leadership on circular economy approaches through its plans for the Western Sydney Parkland development including a local bio-resources hub that can recover resources from co-digested urban and organic waste and produce valuable items like biodolids, energy and recycled water.

The plans to use parkland development typologies that maximise rainfall permeability and green space, along with creating more blue and green infrastructure than under business-as-usual design and land use planning, are a great example of restoring natural capital.

A circular economy mindset and systematic thinking will be essential to support national and local decarbonisation efforts and sustainable development goals. It is positive to see that the Draft Strategy is looking to foster and support such approaches, through implementation plans, which will consider policy settings, barriers and other ways to accelerate the transition.

WSAA released a report, [Transitioning the Water Industry with the Circular Economy](#), in 2020 and will soon release a Circular Economy Action Plan to help the water industry catalyse and embed circularity in its operations. We look forward to working together with NSW DPIE, Sydney Water and other stakeholders to further these aims.

Lastly, we support the consistent approach that is being taken in this Draft Strategy with the Draft Central Coast Water Security Plan, and the Draft Lower Hunter Water Security Plan.

WSAA has published two reports on 'all options on the table' water supply planning, one about the range of options and the other a deeper dive into engagement on purified recycled water for drinking. They are:

- [All Options on the Table: Urban Water Supply Options](#), which provides levelised cost and other information about all water supply options
- [All Options on the Table: Lessons from the Journeys of Others](#), a guidebook for the Australian water industry on how to approach the conversation with the community about purified recycled water for drinking.

Thank you for the opportunity to make a submission. Should you wish to discuss it, I can be contacted on 0417 211 319 or adam.lovell@wsaa.asn.au.

Kind regards



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RESEARCH 3 Community Views on Recycled Water –
The Impact of Information (2008 – AUSTRALIA)

Naomi Roseth - Research Report No.48 for Cooperative Research Centre for Water Quality and Treatment

- Covered non-drinking and drinking recycling. Concluded that 'exposure to a brief, objective and attractive information leaflet can enhance support for the use of recycled water, though not dramatically. The information leaflet had a greater impact on people's rational rather than emotional response to recycled water.'
- 'Water authorities need to consider whether more substantial communication initiatives might achieve greater levels of understanding and support for recycled water schemes.'

RESEARCH 4 The effect of information on public acceptance –
The case of water from alternative sources (2010 – AUSTRALIA)

Sara Dolnicar, Anna Hurlimann, Long Nghiem for University of Wollongong

- Information about water from alternative sources increases public acceptance.
- For both recycled and desalinated water, providing information about the production process significantly increases the stated likelihood of use.
- Concludes that providing factual information, as opposed to persuasive campaigns, will increase public support of water augmentation projects.
- "Technology to augment water on a large scale has been available for a long time (Asano and Tchobanoglous, 1991; Elimelech, 2006). Yet, public knowledge about water, especially water from alternative sources such as recycled and desalinated water, is relatively low among the general population (Dolnicar & Schäfer, 2009)."

RESEARCH 9 Stream 3 Products Evaluation Report: Online survey by the Australian Water Recycling Centre of Excellence (2014 - AUSTRALIA)

Part of the National Demonstration, Education and Engagement Program

- 400 respondents in each of Brisbane, Sydney, Melbourne, Perth were asked questions to better understand Australians' attitudes toward water use and reuse and to gauge the effectiveness of educational videos in increasing people's knowledge of water, the water cycle and water reuse.
- Some were then shown ten minutes of educational videos such as the Water Cycle Explorer and Think and Drink animations, and asked another set of questions.
- Before and after viewing the video, respondents were asked for their level of support for augmenting drinking water with purified water taken from used water sources.
- More than half of survey respondents (54%) started out being generally supportive of water reuse. Yet even a small amount of information (i.e., 10 minutes of video) had the effect of raising support for augmenting drinking water with used water to 78%. Additionally, for roughly half the respondents watching the video increased their trust in water reuse technology and their water utility. After seeing the video, 80% of respondents said it was either 'likely' or 'very likely' that they would be willing to drink reused water if conventional water supply sources were unavailable or extremely expensive.

FIGURE 12
Support for drinking water reuse in Sydney, Melbourne, Brisbane and Perth (Australian Water Recycling Centre of Excellence, 2014)

