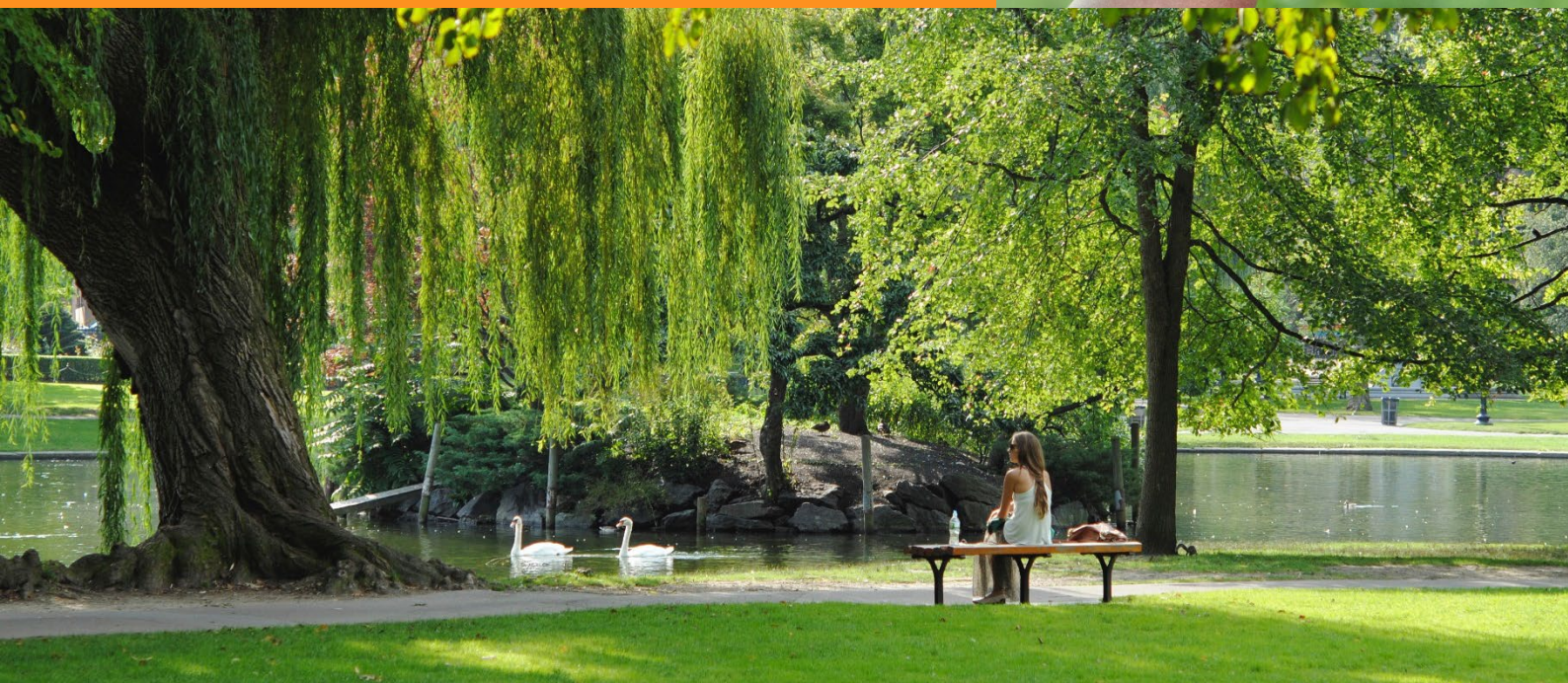
WATER SERVICES
ASSOCIATION OF AUSTRALIA

Submission to Rous County Council

Future Water Project 2060

May 2021



1. Key messages

1. **WSAA supports the objectives of Rous County Council's *Future Water Project 2060*, and the 'all options on the table' approach that has been taken to planning future water security. We support further consideration of all four options listed in the online survey: groundwater, desalination, indirect and direct recycling. This should be carried out with expert oversight.**

2. **All options can play a role in ensuring a secure water supply. We support the inclusion of smart metering and water efficiency, as using the water we have wisely should always be the first step. On the supply side, we support the inclusion of 'newer' options such as desalination and purified recycled water. In fact these options are well established and proven around the world. Purified recycled water can use a range of treatment trains (not only reverse osmosis) that suit different circumstances.**

3. **There is growing discussion in Australia about using recycled water from both wastewater and stormwater, for a broader range uses including purified recycled water for drinking. Western Australia has an existing scheme that is expanding; the Draft NSW Water Strategy calls for public engagement; the NSW Productivity Commission recommended exploring a demonstration plant for Sydney; and it is a long-term supply option short-listed for consideration in the Lower Hunter Water Security Plan; Toowoomba is considering this option again, and in South-East Queensland there are plans to re-activate the Western Corridor scheme.**

4. **35 cities around the world, especially in America, have adopted purified recycled water as part of their drinking water supply. This includes many parts of California, Texas, Europe, Singapore and Africa, Perth, South East Queensland. Orange NSW has a stormwater to drinking scheme. The benefits of these options include rainfall independence, environmental benefits, and cost.**

5. **The Public Exhibition Document (Hydrosphere report) questions the viability of desalination and purified recycled water (called direct/indirect potable reuse) due to 'expected stakeholder opposition'. All water supply options have pros and cons. Rather than make assumptions, we believe this report would have been more up to date if it had investigated the wide body of resource and education materials now available that can help utilities to go on a journey of understanding with their communities, particularly in relation to purified recycled water for drinking. Our 'All Options on the Table – Lessons from the Journeys of Others' report is a guidebook for the Australian water industry on this topic.**

6. **We commend Rous Council's innovative plan to explore purified recycled water through a pilot, and the proactive messaging on its website. This will allow communities to form their own views. Around the world, demonstrations and pilots have proved to be a key step that enable stakeholders, decision-makers and communities to see the technology and have confidence in the rigorous treatment, testing and monitoring regimes to meet all required health and safety standards.**

7. **During the Productivity Commission's current National Water Reform review, the Commission's recent Draft Report supported the 'all options including purified recycled water' approach. This is best done with a long term approach by preparing now to address climate and population challenges in future.**

8. **WSAA would welcome the opportunity to engage with the Council and share our learnings. WSAA has produced a range of information resources on these topics, and would be pleased to share them. An important element is providing information about the water cycle, as recycling speeds up what happens in the natural water cycle.**

2. Introduction

WSAA is pleased to make a submission to Rous County Council's *Future Water Project 2060*. 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.

We support the objectives of Rous County Council's Future Water Project 2060, and the 'all options on the table' approach that has been taken to planning future water security. We support further consideration of all four options listed in the online survey: groundwater, desalination, indirect and direct recycling. This should be carried out with appropriate expert oversight, from people who have had actual experience in the relevant options.

Of these options, purified recycled water is probably the least familiar to Australian communities, despite there being a scheme in Western Australia that has been successfully operating for some years. Therefore, this submission seeks to provide some information about this water supply option which is becoming increasingly common around the world. We commend Rous Council's innovative plan to explore purified recycled water through a pilot, and the proactive messaging on its website to keep the community informed about this. A pilot is a very effective step as it will allow communities to form their own views.

Around the world, demonstrations and pilots have proved to be a key step that enable stakeholders, decision-makers and communities to see the technology and have confidence in the rigorous treatment, testing and monitoring regime it involves to meet all required health and safety standards.

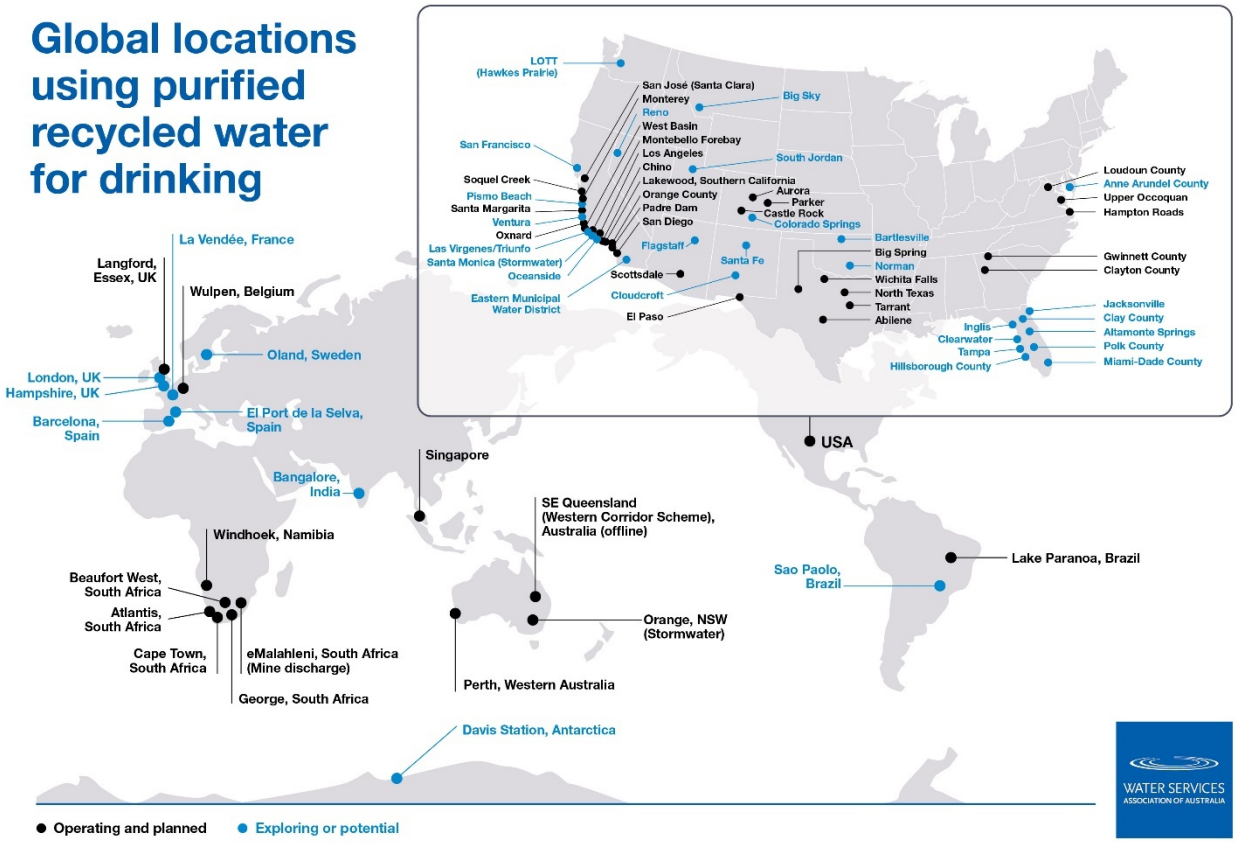
Through our work with the Australian water industry, and researching global innovations, we see increasing interest in extending the uses of recycled water, whether from wastewater or stormwater. This can occur for a range of drivers, including to address water security, to pursue a more circular economy, to boost resilience to climate change, to manage local or strategic issues, such as saltwater ingress or land subsidence, and wastewater nutrient disposal.

One of the key areas being looked at as a future frontier for the water industry is further purifying recycled water and using it for drinking purposes. There are now 35 cities who have adopted this as part of their drinking water supply, in Australia, North America, Africa, Europe and beyond, many for decades. There are also many other cities exploring adopting it in future (see Figure 1 below). There is appetite across the Australian water industry to look further at enabling consideration of this option in future, along with other innovative approaches to ensure a reliable water supply.

The Public Exhibition Document (Hydrosphere report) questions the viability of desalination and purified recycled water (called direct/indirect potable reuse) due to 'expected stakeholder opposition'. We do not believe this is an accurate assumption about stakeholder views. For example, NSW Health have commented in recent industry conferences that they are agnostic to source and are willing to work with the industry to consider any options in ensuring a water supply that meets public health standards.

All water supply options have pros and cons. Rather than make assumptions, we believe this report would have been more up to date if it had investigated the wide body of resource and education materials now available that can help utilities to go on a journey of understanding with their communities, particularly in relation to purified recycled water for drinking. Our All Options on the Table: Lessons from the Journeys of Others report is a guidebook for the Australian water industry on this topic.

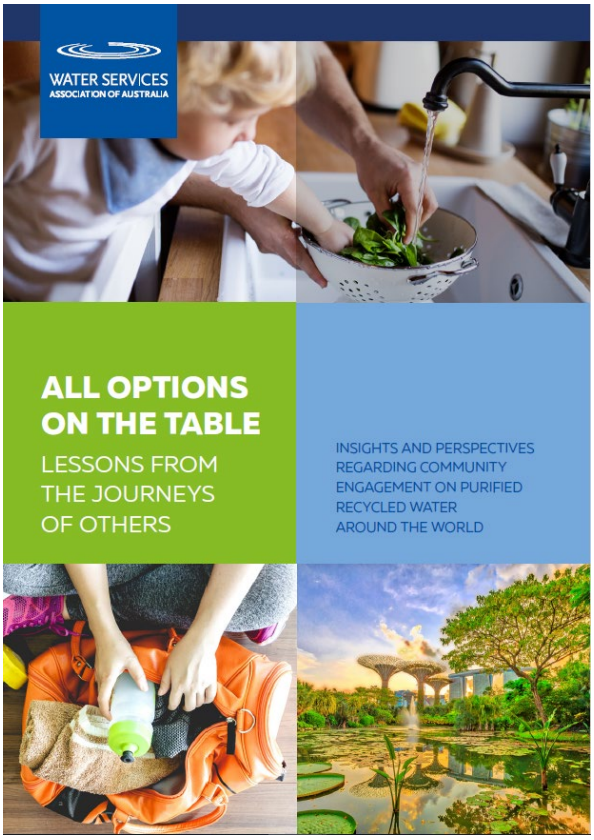
Figure 1: 35 global cities use purified recycled water as part of their drinking water supply



3. WSAA's 'All options on the table' body of work

WSAA has produced two reports promoting the need for all options to be on the table to achieve water security. These include:

- Our 2019 report All Options on the Table: Lessons from the Journeys of Others (which focusses specifically on community engagement about purified recycled water for drinking)
- Our 2020 report All Options on the Table: Urban Water Supply Options (which presents cost and other data about all water supply options)
- We also undertake research, advocacy, briefings and produce resources supporting our 'all options for water security' principle.



WSAA encourages and supports progressing conversation and enabling consideration of further uses of recycled water. WSAA has produced a range of information resources on these topics and would be pleased to share them with Rous County Council. We have animations, short videos, infographics, maps, fact sheets and other free, ready to use materials. Some of the materials are in use in visitor centres around the world.

One of the key ‘lessons learnt’ from experiences around the world is that it is important to begin education and engagement as soon as possible, including helping people to understand that:

- All water is re-used as part of the natural water cycle
- There is no new water on earth
- Recycling is a well-managed part of the urban water cycle, as the recycling of water occurs wherever there are upstream towns and downstream towns that share water resources.

It is also very important to use terminology that is clear and easy to understand, to enable understanding of new water supply options. While the best terminology may be different for each community, WSAA uses the term ‘purified recycled water for drinking’ in preference to other options such as ‘potable reuse’ or ‘recycled water for drinking’ because:

- research in various places has indicated that communities do not understand the term ‘potable reuse’, which is often used as industry shorthand
- ‘purified recycled water’ conveys that the water is different from recycled water used for purposes such as irrigation. It is cleaned to a higher standard than for uses such as irrigation or industry, through an advanced purification process to meet or exceed strict drinking water health and safety standards.

In the All options report we identified ten lessons that utilities can use to plan community and stakeholder engagement:

Lessons from the journeys of others

LESSON 1

It can be done

Communities around the world have implemented purified recycled water schemes for decades. It could be successfully implemented in Australia, if circumstances warrant.

The three 'T's:
- Trust
- Transparency
- Time

LESSON 2

Trust is critical for securing support for purified recycled water

Transparency and open information sharing will help to develop and maintain this trust.

LESSON 3

Establishing purified recycled water is complex and takes time

It takes time – up to a decade. People need to be taken on a journey to be comfortable with it. Rushing or imposing deadlines increases the risk of rejection or backlash.

LESSON 4

Seeing is believing

Investing in a demonstration plant, visitor centre and tour program for 'place based learning' will greatly improve community understanding and support. It can showcase and prove the reliability of the technology, and pre-empt stigma reactions through calm, engaging learning environments.

The experience should be carefully crafted with sequenced messaging to build overall awareness and understanding, and may include sampling the water.

LESSON 5

Wording and imagery are critical

This will be somewhat specific for each community, so local research is important. Choose words and branding that resonate and do not alienate. Technical jargon confuses people and doesn't build trust.

LESSON 6

News media coverage has a profound impact on public acceptance

It can make or break a scheme. Proactively engaging key influencers and the media, leveraging social media, and using expert testimony and third party advocacy can help build trust and transparency.

'Water should be judged by its quality and not its history.'

Lucas van Vuuren, South Africa

LESSON 7

Political support is essential

Political cycles can polarise an issue, and force people to take a side. Good engagement across the full political spectrum, to gain and keep support, is critical.

LESSON 8

Grass roots education and engagement

Can be more effective than high profile marketing activity or 'above the line' presence.

LESSON 9

General education around the urban water cycle and context

Will help prevent stigma and encourage acceptance. Provide information on the range of long-term supply options, climate trends and cost.

LESSON 10

Regulators play a powerful role

They will lead government and community perception, and have the authority to determine whether purified recycled water can proceed. It is their role to take a conservative approach to risk management, so it may take a long time for them to become comfortable and produce a regulatory framework. Good regulatory engagement, and high transparency, are essential.

4. Why consider all options for water security?

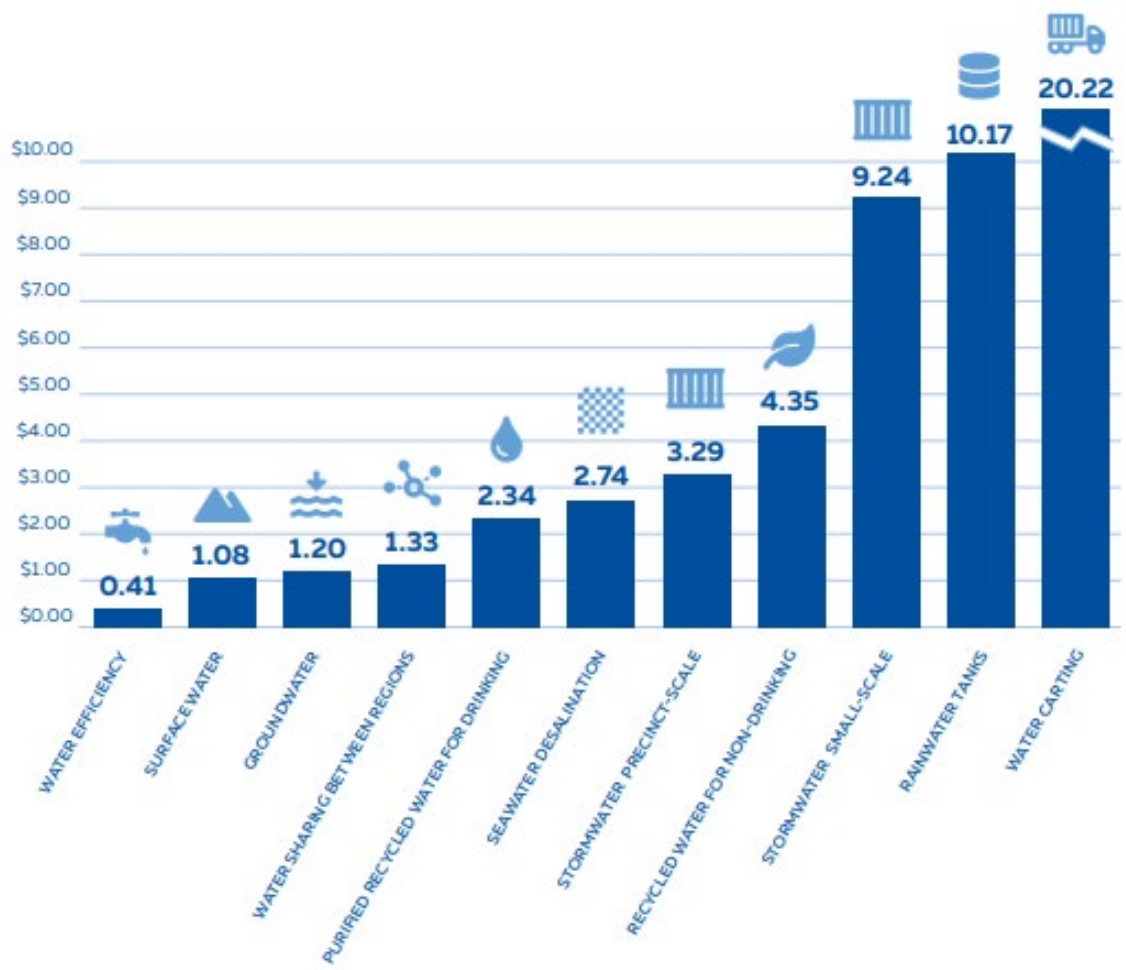
There are many reasons to take an 'all options' approach to water supply planning. Primarily, looking at all options and evaluating them against consistent criteria ensures that the community can receive the best value, most resilient water supply portfolio. WSAA understands that dams have been excluded from further consideration. We support further consideration of all four remaining options listed in the online survey: groundwater, desalination, indirect and direct recycling.

The option of purified recycled water for drinking is sometimes discarded because of perceptions that community acceptance will be challenging or it is perceived as new. However, global experience shows that it is well established in a range of cities, has a mature scientific, regulatory

and social approach, and that with well-planned engagement over a suitable time period, communities can go on a journey to understand and accept it as part of a balanced portfolio to provide water security. 35 cities have done so.

WSAA undertook its 'all options on the table' research and advocacy work to ensure that this option receives equal consideration alongside all available options. Purified recycled water is a worthwhile option to consider as it is typically comparable in cost to other major options and can be lower cost. While precise costs for any specific scheme can only be estimated through the local planning processes undertaken by each utility, WSAA's recent study using cost data from over 300 water supply projects showed that it is likely to be among the cost-competitive options (see Figure 2 below). It is widely regarded across the Australian water industry as the 'next frontier', yet for some years there have been implicit or explicit policy bans on its consideration, even during processes that were based on exploring a full range of options.

Figure 2: Costs of water supply options included in WSAA's All Options on the Table: Urban Water Supply Options report (levelised $/kL 2019-20)



The Australian water industry understands that preparing for the future has a long time horizon. As our populations and cities grow and change, and through managing droughts and climate change, we have a proud history of adapting to meet the needs of the day. However, it is best to take a long-term view of service planning. While it is essential to ensure the guidelines of today meet the needs of the schemes being considered for the next few years, the industry also needs to be identifying preparatory steps it can take now, to address the needs of the next generation.

These preparatory steps include initiating discussion with the community, so that people can start to become familiar with it. Many studies show that the more information people have, the higher their likelihood of acceptance.

For example, the Draft NSW Water Strategy indicates that the government will initiate public engagement for consideration of purified recycled water for drinking, through the Greater Sydney Water Strategy when released. The NSW Productivity Commission recommended exploring a demonstration plant for Sydney (Draft Recommendation 5.5), and purified recycled water is a long-term supply option short-listed for consideration in the Lower Hunter Water Security Plan. Toowoomba is considering this option again, despite the town voting no after a rushed campaign in 2006; and in South-East Queensland there are plans to re-activate the Western Corridor scheme.

5. What is purified recycled water for drinking

This involves taking recycled water (produced either from treated wastewater or treated stormwater), and further treating it through advanced purification processes, to a quality that is suitable to meet drinking water quality guidelines (which in the Australian context is the Australian Drinking Water Guidelines (ADWG)).

This option has a long history in California, including in Orange County, the scheme on which the Western Corridor Scheme in Queensland is based.

Case study: San Diego experience

In the 1990s the City of San Diego had a purified recycled water scheme fully planned, but it was rejected following community backlash, due to local politics and use of the phrase 'toilet to tap'.

However, the challenges in ensuring a secure water supply continued to exist, and it was considered again. After 10 years of careful, patient education, partnering with San Diego Coastkeeper and Surfrider Foundation on a study, then building a demonstration project, San Diego turned the previous opposition around. Community support rose from 26% in 2004 to 73% in 2012 and 79% in 2019. This included information displays explaining that toilet to tap does not accurately describe the process – there are many other 't's, or treatment and testing steps in between. Water is never distributed to customer homes and businesses unless health authorities are satisfied through strict testing and monitoring, that the water meets health and safety guidelines.

The city is now building a full-scale scheme that will supply one third to one half of their drinking water by 2035.

6. Key messages

1. Good water planning means looking at all options, without assumptions as they can all contribute to a secure and resilient water supply.
2. Purified recycled water is now part of the water supply mix in over 35 cities around the world, especially in America.

3. It offers many benefits – it is climate resilient as has low reliance on rainfall, it reduces reliance on water from other regions, and it can be lower cost and more energy efficient than other options. It reduces the water taken from the environment, and reduces nutrient discharges to waterways.
4. It is scientifically proven, environmentally sustainable and all schemes are required to meet strict health and safety standards. It has been used around the world for decades without any known adverse public health incidents.
5. All water is used and reused, as part of the natural water cycle, and all around the world, where upstream towns discharge to rivers used by downstream towns. Technology simply speeds up what happens in nature.
6. Any water that we take from the environment contains impurities, which the water industry has long known how to remove.
7. Nearly all drinking water sources contain treated wastewater from upstream communities. This 'de facto' or unacknowledged recycling happens all over the world, though it's not always well understood.
8. Water should be judged by its quality, not by its history.
9. Treatment, not source, is what makes drinking water.
10. The community has shown they are open to learning more about it and considering purified recycled water in future.

7. Demonstration projects

For around 20 cities around the world that have adopted purified recycled water as part of their drinking water supply, building a demonstration plant and/or visitor centre of some kind has been a central part of their journey. Demonstration plants are smaller functioning prototype plants, with working treatment processes. Their objectives are to scientifically prove the technology, through a defined period of water quality sampling and testing; and to demonstrate the processes to the community at an engaging visitor experience, so that they can see, learn about and understand the treatment processes.

Some cities have introduced purified recycled water for drinking without a demonstration project, but this is typically when they do not have time (for example because a scheme is built during deep drought) or because there are mature schemes very close by that can satisfy some of the objectives of a demonstration project.

For more materials on global visitor centres please contact WSAA (contact details at end).

NEWater Visitor Centre, Singapore

Pure Water San Diego demonstration facility

Orange County Water District H2O Learning Centre

Purified recycled water for drinking is also not new; in fact many places have been using this option for decades, as shown in Figure 3:

Figure 3: Timeline of global cities use purified recycled water as part of their drinking water supply

Two Australian cities use this as part of their drinking water supply:

- **Perth** – the Groundwater Replenishment Scheme has been operating since 2017, and is now being expanded with Stage 2. By 2030, it will provide 8% of Perth's water supply. Water Corporation built trust with a face-to-face approach rather than a costly marketing campaign.
- **Brisbane** – the Western Corridor scheme was built in 2008, and although it has not yet been used as an input to the drinking water supply, it is part of the South East Queensland region's drought supply plan, to be re-commissioned when dams drop below 60%. Recently there was positive discussion in the media around plans to re-commission the scheme to put it to some use.

Additionally in **Orange, NSW** the Blackmans Swamp Creek stormwater-to-drinking water scheme began operating in 2009. Although stormwater is a different source to wastewater, this is another case of an innovative approach to harnessing the resources available within the whole water cycle, to deliver water security outcomes.

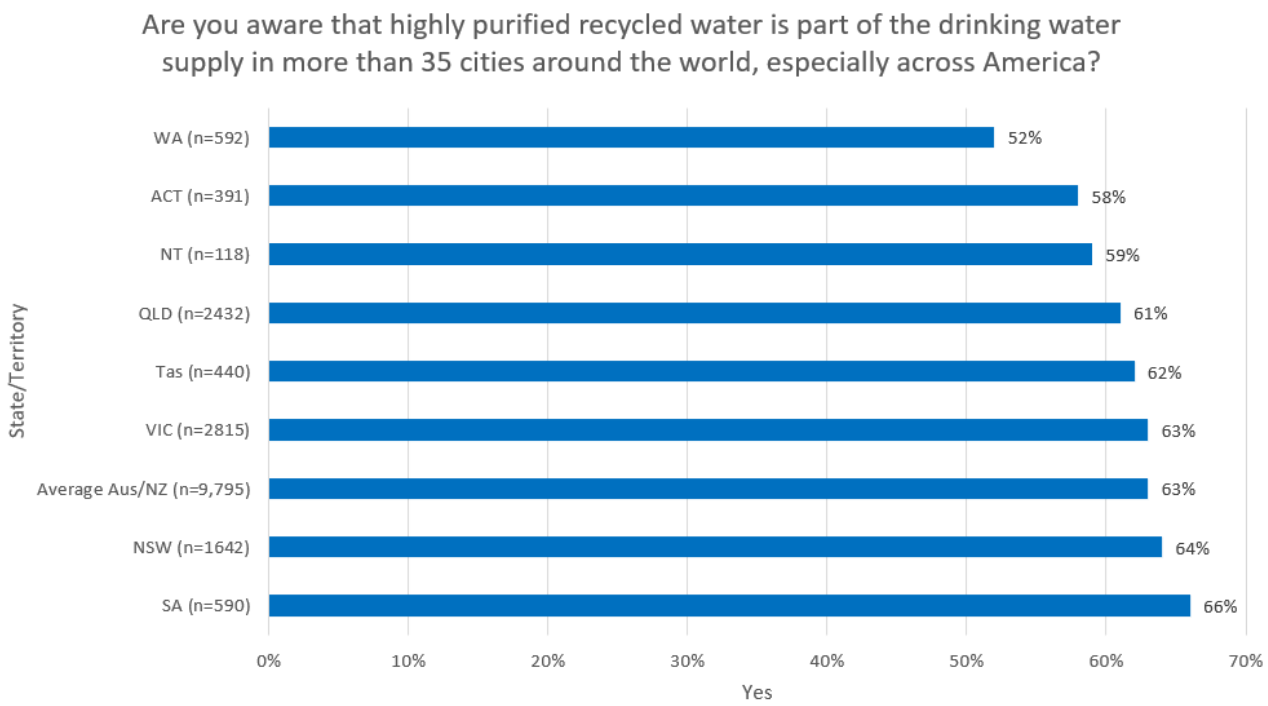
As outlined above, the draft NSW Water Strategy notes that a number of towns would like to include it in their options going forward.

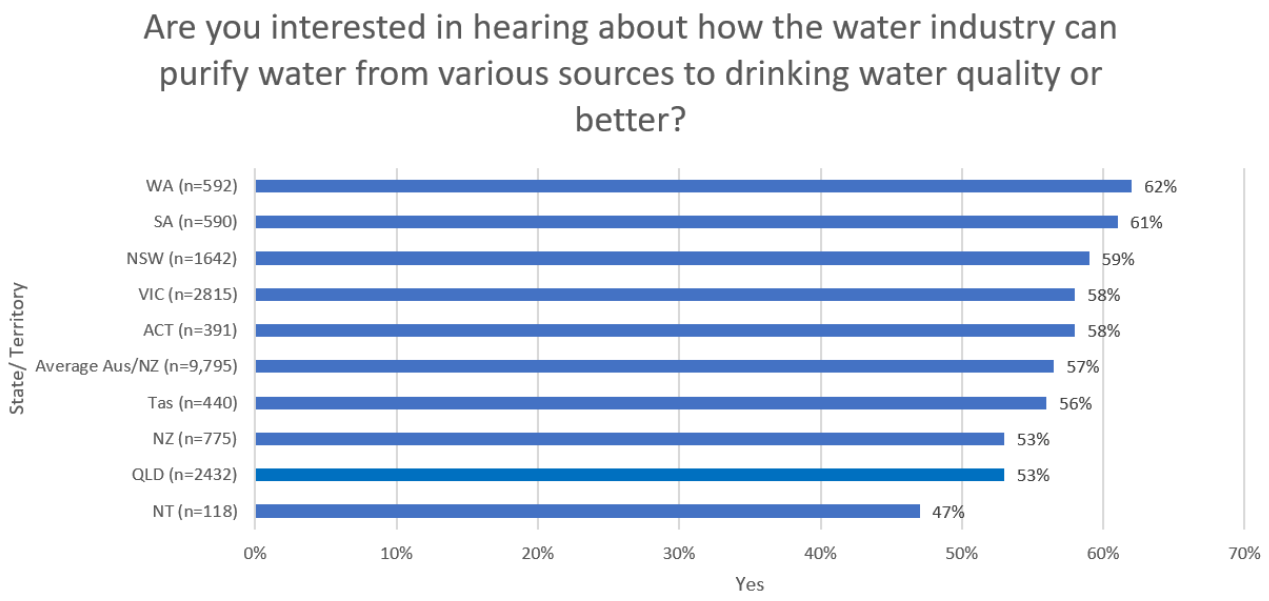
8. Community information

WSAA conducted a survey in 2019 of almost 10,000 Australians, and found consistent results:

- 63% of Australians were not aware that highly purified recycled water was used as part of the drinking water supply in 35 cities around the world, especially in North America
- 57% were interested in hearing more about how the water industry can purify water from a range of sources to a drinking water standard

The national results of this survey were as follows:





During discussion of purified recycled water, the example of Toowoomba (Queensland) is often raised. In Toowoomba, a majority of the town's population voted against a proposal for purified recycled water for drinking in 2006. Policy-makers today wonder if there is likely to be any community backlash if a similar proposal were to arise in a different jurisdiction.

However, the case of Toowoomba was an example of the way not to go about community engagement. It was also marred by local politics. Research since then has found that many people in the town regret the referendum outcome, and newspaper polling indicates a majority of local support for such a scheme. When several years after the referendum, the town's water supply was connected to the Western Corridor scheme (meaning that Toowoomba will be drinking purified recycled water if Western Corridor is operating), this did not attract much community backlash.

The case study of Water Corporation's Groundwater Replenishment Scheme in Perth showed that a thorough and transparent consideration of all options can lead to government and community support for purified recycled water options. Water Corporation's deliberate and open 'Water Forever' planning process, including a demonstration project and community engagement, successfully gained bi-partisan government support and community acceptance. There was not significant community resistance, in fact support remained fairly steady over several years leading up to construction of the scheme. Water Corporation is now building Stage 2 of their scheme.

9. Australian interest in purified recycled water for drinking – National Water Reform submissions

The Australian water industry has a long and proud history of technical innovation and robust service provision to customers and communities. The industry has crossed other frontiers with our communities, including the introduction of desalination during the Millennium Drought and beyond.

In our work with the industry across Australia and New Zealand there is often active and informed discussion of exploring further uses for recycled water, such as purifying it to a drinking water standard. To give an example, a range of submissions to the Productivity Commission's review of the National Water Reform (National Water Initiative), reference the need to consider this water supply option. This includes WSAA's own submission, which was prepared after lengthy consultation with the water industry across Australia. This includes:

Submission from	Reference	Summary

WSAA	Throughout	WSAA's submission contains extensive discussion of this issue, particularly in Section 4
One Water Advocates	p3	Potable reuse is still silent as a realistic and economic alternative to traditional sources of water
Flow Systems	p4	Water must be recognised as a resource: Currently, high-quality recycled water is treated as waste and an environmental pollutant. Even putting aside (direct or indirect) potable reuse, recycled water should be treated as a valuable resource for irrigation and environmental flows but is currently treated as a pollutant. Access to stormwater for treatment is difficult and involves dealing with multiple authorities.
TasWater	p8, 10	Including a mechanism to enable urban water providers to consider all servicing options including direct potable reuse
Local Government Association of Queensland	p1, 6, 10	Recycled water - The LGAQ believes that enhanced investment by the Federal and State Governments in modelling surface and groundwater systems could prove beneficial in determining the potential economic, social and environmental benefits of alternative water sources. The LGAQ would further suggest that there is a place for a national agenda and position in relation to indirect potable reuse.
Queensland Water Directorate	p4	Innovation in water sourcing, trading and opportunities for recycling (including potable reuse) has progressed little beyond the development of the Bulk Water Opportunities Statement and the investment in bulk water delivery assets in parts of the state (see Information Request 4). Plans for water security in many regions are reduced to political arguments over the affordability and utility of new dams with no clear infrastructure plan to ensure future water security or the certainty of communities and investors in Queensland's regions. WSAA has promoted an "all options on the table" concept for decisions about water sources which includes new approaches to stormwater and sewage management. qldwater supports the concept, however it is difficult to see pathways to adoption with Queensland's current political appetite and institutional issues. qldwater strongly advocates for "fit for purpose" infrastructure solutions – cost-effective and strongly aligning water needs with end uses over a long-term planning horizon.
VicWater	p4	The 2017 PC inquiry report includes an extended discussion on approaches to manage scarcity or augment urban supplies in the future, including: desalination, potable reuse, expanding dams, water efficiency, water restrictions and higher unit water rates. The PC also correctly notes that "planning should be transparent and consultative [and that] trade-offs should be informed by meaningful customer engagement" (2017 p186). Yet there remains a risk that the new NWI merely updates the technocrats' water policy paradigm for the new decade. A rehashed technocratic narrative on urban water policy settings risks repeating past mistakes.
Queensland Urban Utilities	p5	Limitations on the options considered for water supply planning and the discouragement of conversations with our communities on options such as purified recycled water for drinking;
Sydney Water	p18	WSAA's "Lessons from the Journeys from Others" is an important step in demonstrating the widespread overseas adoption of using purified recycled water, technical feasibility and effective pathways to incorporate community views. This is important because options cannot be given equal weight if decisions makers consider them to be unproven or to have significant community acceptance risks. For this reason, our recommendation is that the NWI's continued support for "all

		options" must be accompanied by effective technical, economic and social research.
Water Research Australia	p5	The need for national and state based policy and regulatory frameworks supportive of integrated urban and rural and remote water management, providing key guidance and incentives to consider 'all supply options on the table', including centralised /decentralised, potable reuse and stormwater in the mix of supply augmentation options.

Contact

WSAA welcomes the opportunity to discuss this submission further.

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