WATER SERVICES
ASSOCIATION OF AUSTRALIA

Submission to EPA Victoria review of draft Guideline for Water Recycling

November 2020

Key messages

1. **WSAA encourages and supports the objectives of this review, and the creation of a streamlined and easy to use regulatory framework for using recycled water. While this review is not intended to look at new uses for recycled wastewater, nor cover stormwater recycling, it is a good time to consider the increasing interest in broadening the sources and uses of recycled water.**

2. **There is growing discussion about using recycled water from both wastewater and stormwater, for a broader range uses including purified recycled water for drinking.**

3. **During the Productivity Commission's current National Water Reform review, the Australian water industry nominated as a key priority the need for all water supply options including using purified recycled water for drinking, to be on the table as part of modern, comprehensive water supply planning.**

4. **Taking an 'all options' approach ensures the community can receive the best value and most resilient water supply options available within a particular context. This is best done with a long term approach – implementing solutions that work now, but also starting to prepare for options that may address climate and population challenges that will emerge in future.**

5. **Purified recycled water for drinking forms part of the drinking water supply in 35 cities globally, including Perth, South East Queensland, and Orange NSW (recycled stormwater). There are several key drivers for considering this option.**

6. **As there is increasing interest in this water supply option, we would support and encourage exploration of how to progress and enable consideration of further uses of recycled water and other innovative ways to ensure a reliable water supply.**

7. **One of the key lessons learnt by global cities that have implemented purified recycled water for drinking, is that it is important to make communities familiar with this water supply option early on, so that they can learn about and understand it.**

8. **WSAA would welcome the opportunity to engage with all parties involved in the review (Department of Environment, Land, Water and Planning, EPA Victoria, Department of Health and Human Services, and the industry) about:**

   - **initiating a new review to further consolidate stormwater into this Guideline, and**
   - **setting up a process for stakeholder and community engagement on all sources and uses of recycled water.**

   WSAA has produced a range of information resources on these topics, and would be pleased to share them, as appropriate.

2. Introduction

WSAA is pleased to make a submission to EPA Victoria's review of the draft Guideline for Water Recycling. 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 note that the main purpose of this review is to consolidate a number of existing guideline documents into a single document. As such, this review is fairly administrative in nature, and does not look to broaden the scope of uses for recycled water (whether from wastewater or stormwater). We encourage and support the objectives of the review, and the creation of a streamlined and easy to use regulatory framework for using recycled water.

Through our work with the Australian water industry, and researching global innovations, we see increasing interest in extending the uses of recycled water. 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).

While using purified recycled water for drinking in Victoria is beyond the scope of the current review, it is a good time to flag that there is appetite within 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.

Clarifying the scope

Page 13 of the draft Guideline states that 'The Victorian Government encourages safe and sustainable recycled water use for non-potable purposes.' This statement effectively limits the scope of this Guideline to non-drinking uses, as does Section 1.3.3.1: "This guideline covers the management of health and environmental risks associated with non-potable recycled water schemes, and activities exceeding the threshold in the Environment Protection (Scheduled Premises) Regulations 2017 of 5,000 L/day design capacity or actual flow rate."

A document titled 'Victorian Guideline for water recycling' which explicitly limits its scope to non-drinking uses, could be construed as a policy ban on using recycled water for drinking purposes. It may be worthwhile renaming the guideline, 'Victorian Guideline for water recycling for non-drinking uses'. This would not preclude the EPA, or the Department of Health and Human Services, from preparing a separate Victorian Guideline for water recycling for drinking uses.

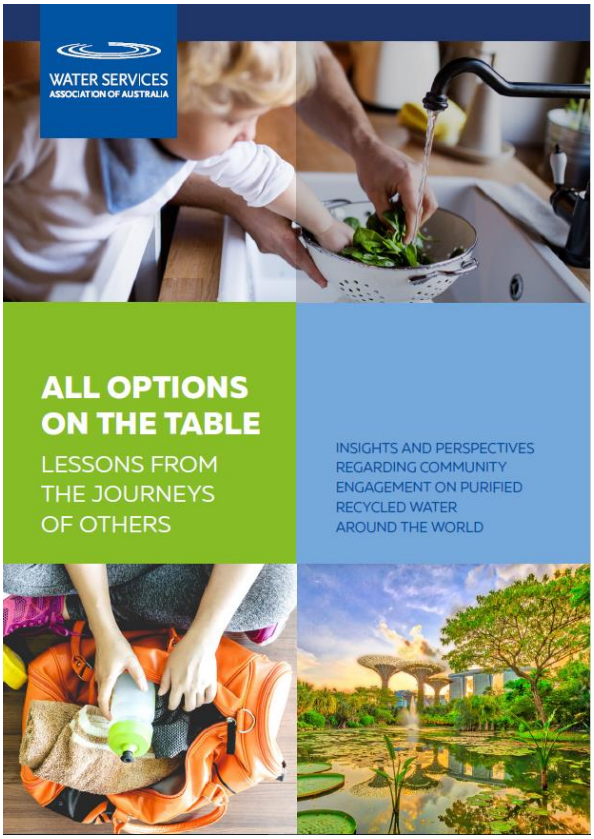
In addition, consider moving the statement from Section 1.3.3.1 into Section 1.1. This would make the scope of the document clearer early on, and mean that the first description of the document's scope was without reference to the Government.

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 & other data about all water supply options)

- We also undertake research, advocacy, briefings and produce resources supporting our ‘all options for water security’ principle.

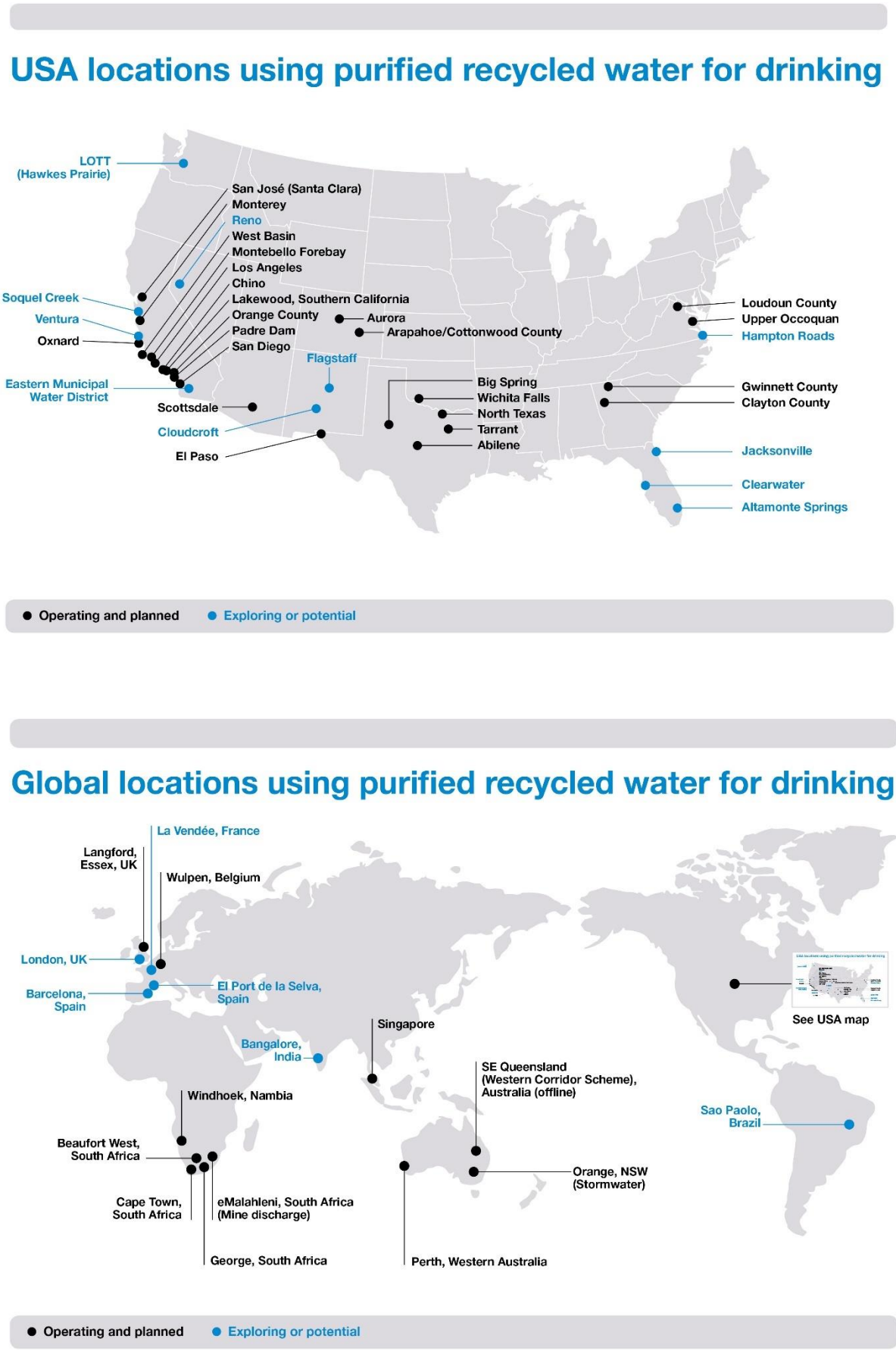


4. What is purified recycled water for drinking

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)).

Different terms are used around the world for this, including ‘potable reuse’. WSAA uses the term purified recycled water as it is easier to understand and reflects that this involves treating the recycled water to a higher standard than for uses such as irrigation or Class A recycled water.

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



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

Purified recycled water for drinking is also not new; in fact many places have been using this option for decades, as shown in Figure 2:

Figure 2: Timeline of global cities use purified recycled water as part of their drinking water supply

Three 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%
- **Orange, NSW** – 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.
- Sydney and the ACT also gave it significant consideration during the Millennium Drought, in around 2007.

5. Australian industry interest in purified recycled water for drinking

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.

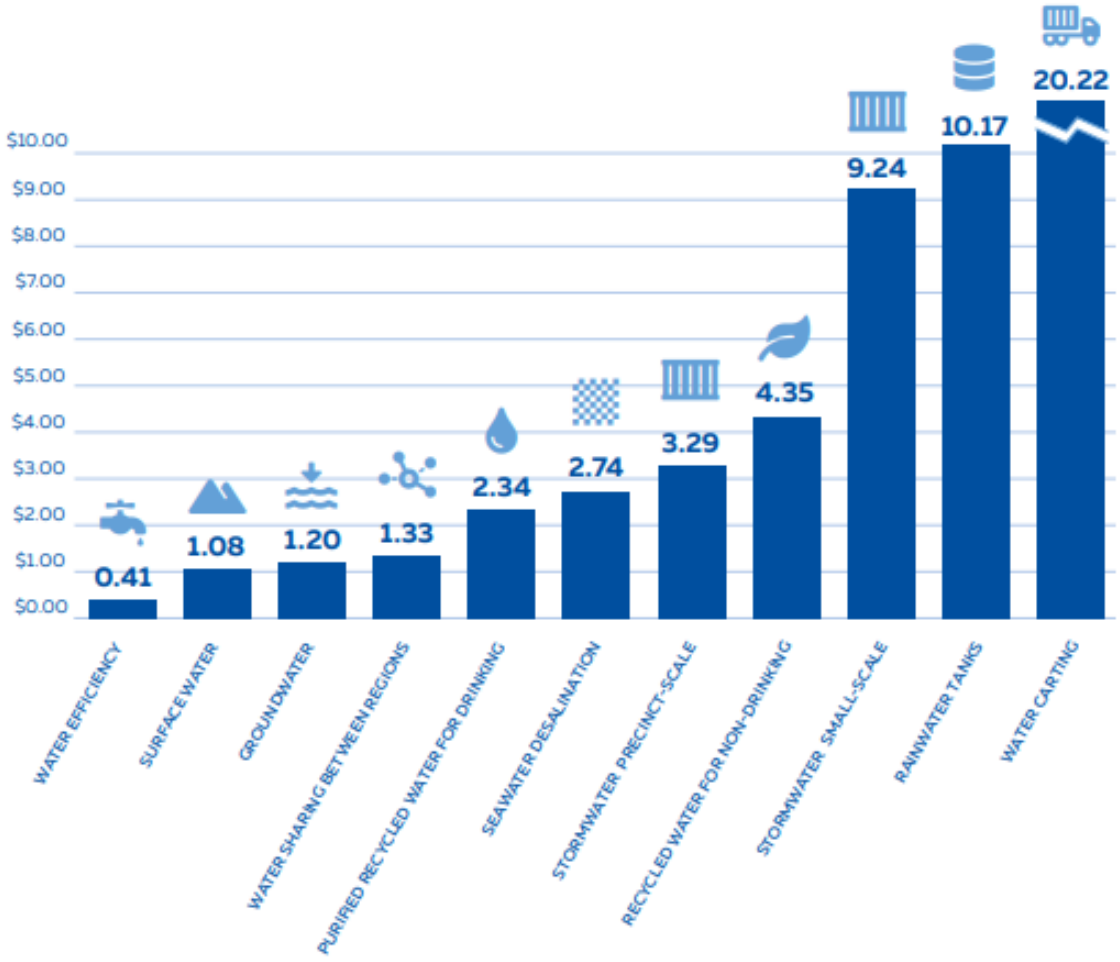
There are many reasons to take an 'all options' approach to water supply planning. Primarily, looking at all options and evaluating them against consistent criteria ensures that the community can receive the best value, most resilient water supply portfolio.

This option 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 be brought on a journey to understand and accept it as part of a balanced portfolio to provide water security.

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. 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 3 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 3: 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 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.

Victorian context

The drivers that have led other cities to consider purified recycled water for drinking also exist in Victoria. Section 5 of the Victorian Government's 'Water for Victoria' plan, *Resilient and liveable cities and towns*, identifies several key challenges ahead (p74):

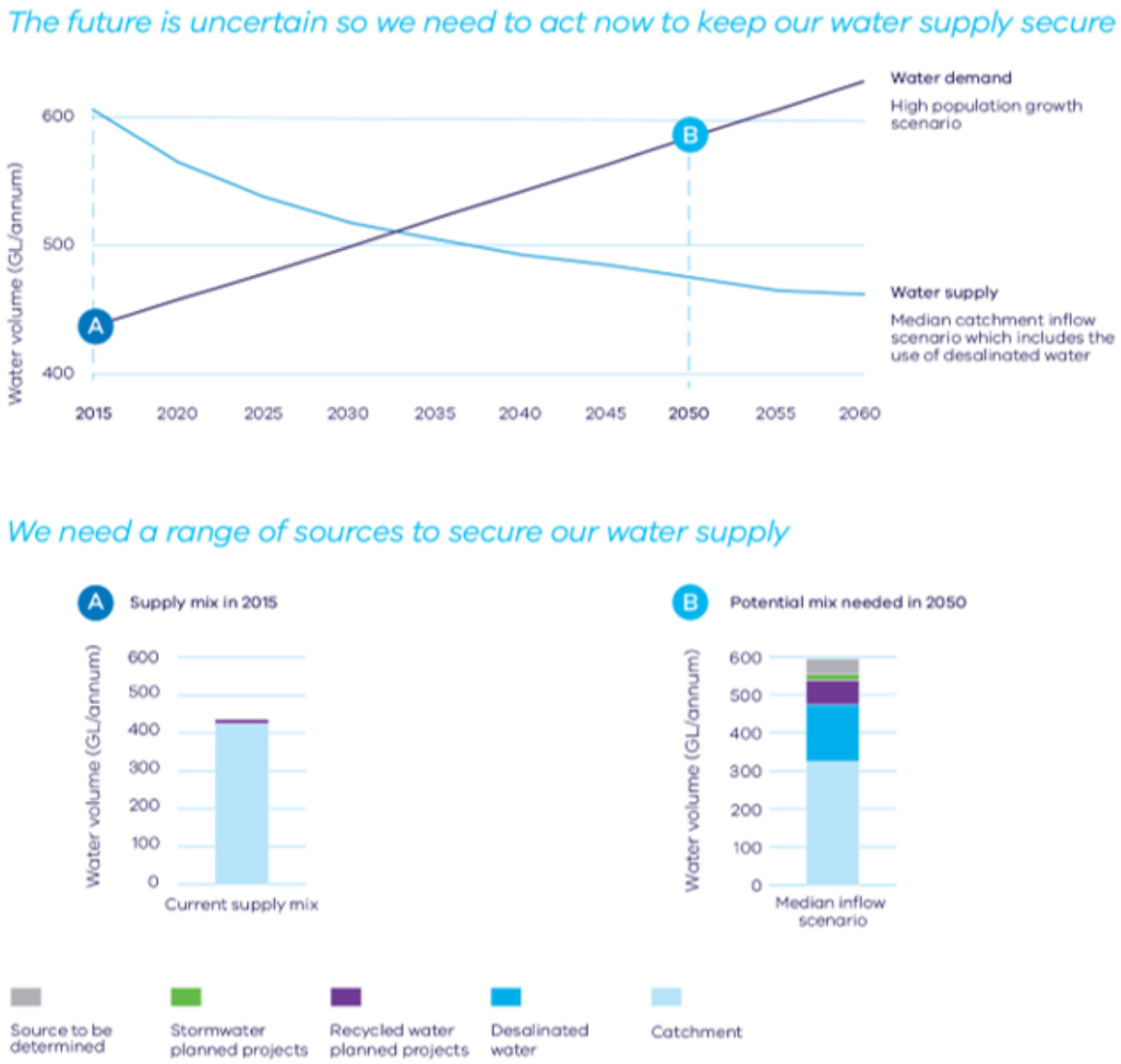
- Victoria's population is projected to reach 10.1 million by 2051. The populations of Melbourne and the major regional centres of Ballarat, Bendigo and Geelong are expected to almost double
- Climate modelling indicates that Victoria will become drier and warmer. Drought, urban flooding, bushfires and heatwaves will likely happen more often

- Drought and reduced rainfall will further impact on the water available to keep cities and towns cool and green
- Rapid urban growth and increasing stormwater flows will degrade urban waterways unless we improve the way we manage stormwater.

The Plan commits to '…include[ing] all elements of the urban water cycle in the way we plan and manage water so that Victorian communities can continue to thrive in all climates' (p73) and states that 'We will make the most of all water sources, including recycled water and stormwater, which is also essential for water security.'

Section 5.1, *Using diverse water sources to achieve secure water supplies*, notes that 'we may need our next major supply augmentation for Melbourne sooner rather than later due to population growth and climate change'. This is supported by Figure 5.2 which notes there is a gap that will need to be met in planning for 2050 ('source to be determined (grey box, column B).

Figure 5.2 – Potential future supply and demand scenario for Melbourne



The Plan goes on to say that (p76-77), 'Significant progress has been made in the use of recycled water in cities and towns over the last decade. However, opportunities to use more recycled water remain and will continue to grow as our cities and towns grow. The Department of Environment, Land, Water and Planning will work with water corporations and the Essential Services Commission to investigate mechanisms to increase the uptake of recycled water, in both urban and agricultural areas. This investigation will look at pricing mechanisms, innovation and

infrastructure as well as incentive programs….The government will maintain public confidence in recycled water and stormwater schemes through strong regulation, research, and community engagement.'

In this context, there is a valuable opportunity to explore whether options in use around the world, could help Victoria to meet these challenges. This would build on the Victorian water industry's strong record of innovation, good customer engagement and integrated water cycle management expertise. This could include a range of ways to better utilise the resources in recycled water (water, nutrients and organise) to provide affordable water services that contribute to liveable and resilient cities. WSAA's recently released Transitioning the water industry with the circular economy report captures and steers the growing trend in Australia, including Victoria, towards circular economy objectives.

WSAA understands that this is beyond the scope of this current review. We would support and encourage any consideration of this in a broader policy context, at both state and national level.

WSAA's submission to the National Water Reform review being conducted by the Productivity Commission noted that 'As the driest inhabited continent on earth, we need to be open to diverse water supply options… all available options need to be considered in all jurisdictions, and evaluated against the same criteria…[this] does not pre-empt an outcome or assume that any particular water supply option is right for any location. It would simply help to enable the water industry to confidently perform its role of evaluating all available options, and assessing them against standard criteria. This in turn gives communities confidence that they can receive the most cost-effective and resilient options to ensure water security.' (p20)

Marsden Jacobs also recommended in their 2019 report for Infrastructure Victoria, Water Governance Reform - 2019 Victorian Infrastructure Strategy Update that:

Recommendation 1: Reform Victorian urban water governance to ensure all options are on the table.

- *Water for Victoria* commits to "taking a long-term view of our resources and allowing sufficient time to explore all options. We will meaningfully engage the community"…We recommend that current policy bans, such as indirect potable reuse, are removed and these supply options are objectively considered on their merits, citizen-customer support for the option, and assessed against the same health standards as other water sources. (p7)

- **Recommended Action 2.4:** that generic guidelines are indirect and direct potable reuse are developed, drawing on existing generic guidelines for direct and indirect potable substitution, such as by the US EPA (ref). We recommend that these generic guidelines are developed jointly by appropriate authorities, including EPA Victoria, DHS, DELWP and relevant water authorities. (p13)

- **Responsibility, authority and autonomy:** Boards and water corporations should be allowed to have all options on the table with respect to long-term augmentation decisions. We need to remove barriers (real or perceived) to Boards and water corporations making independent decisions around long-term augmentation options. For example, responses during the millennium drought were limited by Government by excluding new dams, transfers between catchments, indirect potable substitution, et cetera. To the extent these constraints still operate, they should be removed. (p43)

6. Community information

Recent customer research conducted by Marsden Jacobs for Infrastructure Victoria, suggests there may be community appetite for consideration of purified recycled water. In a survey of almost 1,000 Victorian households, Marsden Jacobs highlighted these key findings (p61):

- Victorian households told us they are somewhat concerned about water security in Victoria, and mainly about rural shortages

- There is generally low awareness of potable reuse in Australia, and that most Victorian households are already receiving indirect potable reuse water
- When Victorian households are posed with trade-offs, households support using indirect potable reuse for drinking and non-drinking uses. Specifically, they support using indirect potable reuse when it reduces or does not materially increase their water bills, and the investments help secure their household water supplies
- Around 60% of Victorian households want to be more engaged with long-term augmentation planning through urban water strategies, price submissions and ongoing deliberative processes.

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 Victorian results of this survey were as follows:

Figure 6: Awareness of purified recycled water for drinking use, Insync September 2019 (n= 9,422 collected Aug 2019)

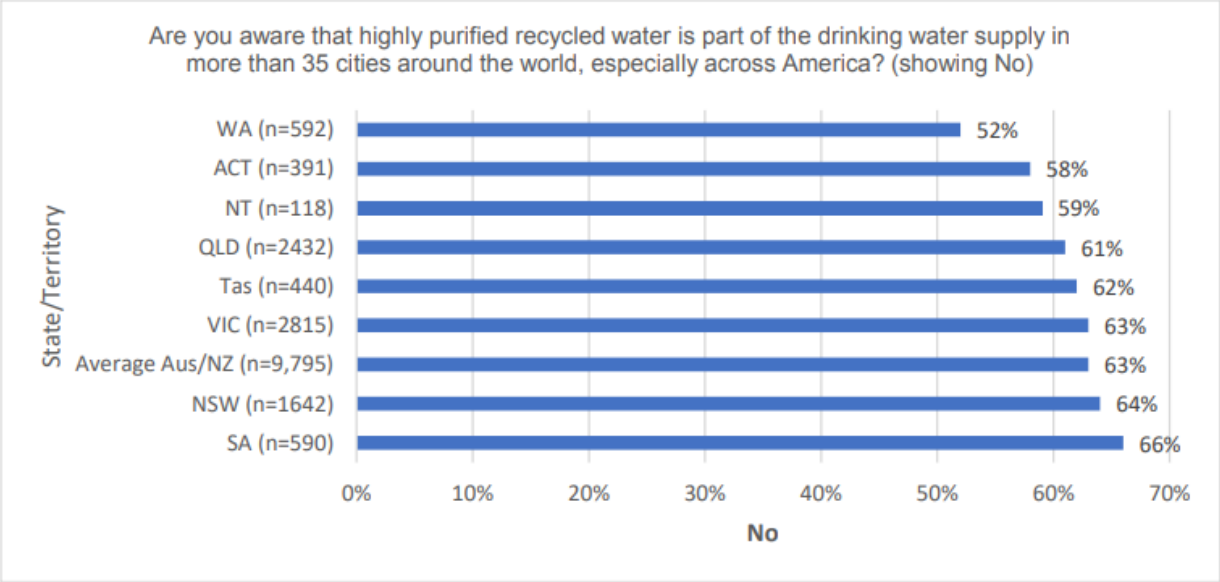
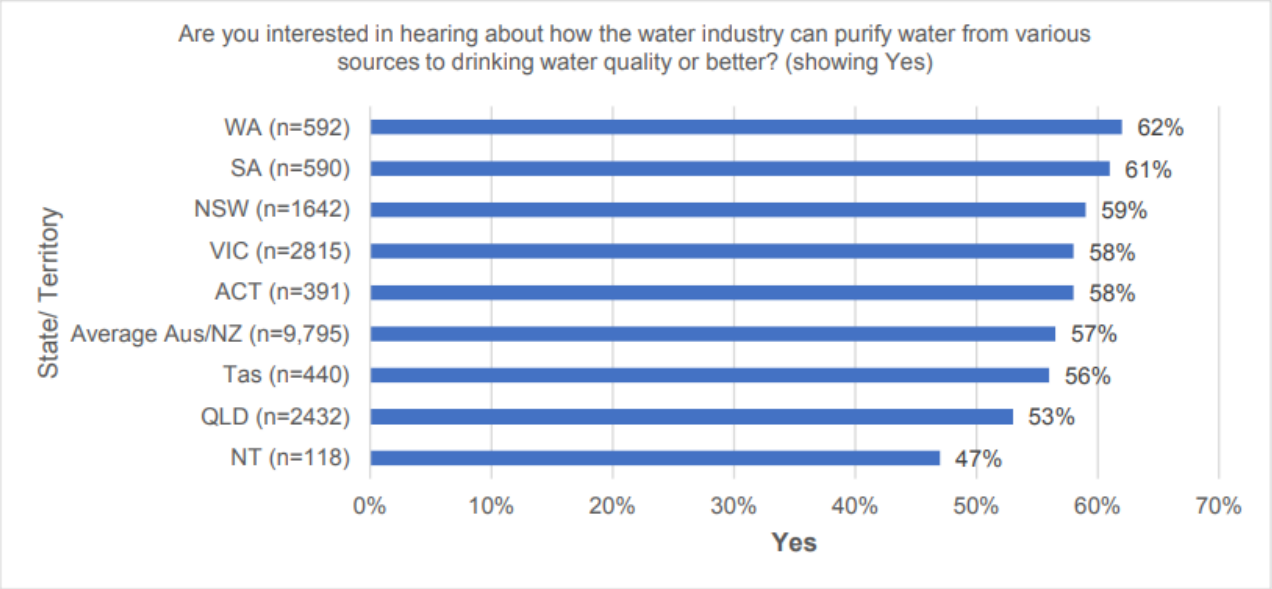


Figure 7: Interest in hearing more about purifying water for drinking, Insync September 2019 (n= 9,422 collected Aug 2019)



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 Commissioning 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.

7. Future consideration

WSAA would encourage and support exploration on how to progress and enable consideration of further uses of recycled water, in subsequent reviews or through other forums.

WSAA has produced a range of information resources on these topics and would be pleased to share them and liaise with EPA Victoria as appropriate.

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.

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.

Contact

WSAA welcomes the opportunity to discuss this submission further.

Adam Lovell, Executive Director, WSAA
adam.lovell@wsaa.asn.au
Ph 02 8397 7291

Danielle Francis, Project Manager, WSAA
danielle.francis@wsaa.asn.au
Ph 0427 021 115