Acknowledgement

WSAA would like to thank its members for their input and comments including contributing the case studies which bring this paper to life.
Overview

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

As Infrastructure Australia recently commented:

"Many Australians rarely think of where their drinking water comes from, or where their wastewater goes. This is a product of the success of our water sector, which has provided high quality services to most users over many decades".

The current drought provides the background for this urban water update. It is timely to review how we are responding to the drought but also not lose sight of the longer-term challenges and opportunities facing the sector.

The drought is having a devastating impact on rural communities. In responding to the current drought utilities everywhere are working hard with the community to reach the next level of water efficiency while also reducing leakage rates.

Drought is also impacting major cities, but large investments in desalination and water recycling during the Millennium Drought are now paying off with diverse, resilient and secure water supplies.

However, the industry still faces risks and challenges including population growth, urbanisation and climate change. In response the industry is also broadening its vital role in improving the liveability and prosperity of our cities.

While the last year has been dominated by drought and its impacts, overall the industry has ensured we are in a better position than the last drought and have a focus on the future.

**NEXT STEPS**

**What WSAA is calling for**

- All water supply options on the table including desalination, dams, water efficiency and all forms of water recycling
- Integrating stormwater into the urban water cycle to reflect the role it can play in creating and maintaining liveable cities and communities
- Improved collaboration between Federal, State and local government agencies, water utilities and other stakeholders for long term water security planning that includes the latest science for climate change
- A new National Water Initiative that recognises future challenges

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1. Australian Infrastructure Audit 2019, Infrastructure Australia
A year of severe drought

Drought

The drought has intensified in Australia over the last year with many parts now experiencing their most severe drought on record. In many regions the current drought is worse than the Millennium Drought and takes place against a backdrop of consistently rising temperatures with the summer of 2018–2019 being Australia’s hottest on record. Globally, the period from 2014 to 2018 were the warmest years on modern record.

Eastern Australia has been experiencing significant rainfall deficiencies since early 2017 and together with warmer temperatures this has resulted in increased evaporation in dams and catchments as the current drought intensifies. The Bureau of Meteorology outlook for the next few months is again warmer than average temperatures likely across much of Australia.

<table>
<thead>
<tr>
<th>9/10</th>
<th>2018–2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of Australia’s hottest years occurred in the last decade</td>
<td>Australia’s hottest year on record</td>
</tr>
<tr>
<td><strong>2014–2018</strong></td>
<td><strong>Future rainfall decreases</strong></td>
</tr>
<tr>
<td>Globally, warmest years on modern record</td>
<td>Across southern Australia with more time in drought</td>
</tr>
</tbody>
</table>
Rural Australia facing tough conditions

Despite Government action, a number of rural communities are facing critical shortages in unprecedented conditions. Many communities are on high level water restrictions and Governments have started to invoke temporary emergency measures to ensure communities do not run out of water.

The Federal Government has recently announced the National Water Grid – a new authority to deliver strategic planning and project management for water infrastructure across the nation.

The independent statutory authority will be established by the end of 2019 and will help ensure long-term, sustainable water infrastructure for regional producers and communities.

To meet immediate needs, Governments are funding new dams, pipelines, pumps and bores to provide emergency infrastructure where it is needed most.

Dams supply over 90 per cent of drinking water supplies in Australia\(^2\) and continue to play a principal role in meeting water needs in Australia, along with desalination, recycling and water efficiency. Every water system is unique and all solutions require collaborative planning between industry, government, regulators and communities. In some locations, dams will remain the appropriate solution to meet future water supply needs.

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## CASE STUDY

### Broken Hill Pipeline

<table>
<thead>
<tr>
<th>Pipeline</th>
<th>Raw Water per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>270 km</td>
<td>37.4m litres</td>
</tr>
</tbody>
</table>

The Wentworth to Broken Hill Pipeline is a 270 kilometre pipeline from the River Murray near Wentworth to Broken Hill supplying up to 37.4 mega-litres of raw water per day. The pipeline was completed at the end 2018 by WaterNSW.

Broken Hill and surrounding communities had suffered from significant water shortages and after considering potential long-term solutions, the Wentworth to Broken Hill Pipeline was announced in mid-2016.

The pipeline requires four pumping stations which were constructed along the route, as well as a 720 mega-litre bulk water storage facility 25 kilometres south of Broken Hill.

The pipeline provided immediate benefits to both Wentworth and Broken Hill. Over 150 local people contributed to the pipeline workforce which reached a peak of over 500 workers during construction. Broken Hill and Wentworth based companies supplied almost $50 million in goods and services to the project.

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\(^2\) BOM, National Performance Report 2017-18

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RAINFALL DEFICIENCIES 18 MONTHS 1 JAN 2018 – 30 JUNE 2019

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City supplies diversified

Without minimising the challenges in the coming months for rural communities, the story in cities is more positive. While many cities are also experiencing some of the driest conditions on record with dam levels dropping quickly over the past 12 months to below what they were during the Millennium Drought, investments to secure water supplies during the Millennium Drought are now paying off. In response to the Millennium Drought, urban water utilities across Australia invested around $30 billion to diversify and secure water supplies for the future through desalination, recycling and water efficiency measures.

Perth has the most rainfall independent water supply. Reduced rainfall has resulted in a 50 per cent reduction in stream flows into Perth’s reservoirs since 1990. In response Water Corporation’s Security Through Diversity Strategy integrates a range of supply options such as desalination, groundwater and recycling for non-drinking purposes with demand side initiatives to reduce water use.

In major coastal cities, large-scale seawater desalination plants operate independently of rainfall.

The community uses water more wisely

Water efficiency initiatives across the country were very successful during the Millennium Drought with large decreases in per capita water use. These behaviours have largely remained and utilities across the country continue to provide high quality safe and secure supplies – even when faced with extreme climatic events. Dual flush toilets, water saving shower heads and water efficient washing machines have all hard wired water efficiencies into the home.

National, regulated schemes such as the Water Efficiency Labelling and Standards (WELS) Scheme and Smart Approved WaterMark (SAWM) provide information about water efficiency fittings, appliances and outdoor products.

It is estimated that households and businesses are now saving over $1 billion a year on utility bills as a result of the WELS scheme and more than 300 products and services have been approved by SAWM.

<table>
<thead>
<tr>
<th>PLANT</th>
<th>AREA SUPPLIED</th>
<th>% OF WATER SUPPLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Coast Desalination Plant (Qld)</td>
<td>South East Queensland</td>
<td>18%</td>
</tr>
<tr>
<td>Kurnell Desalination Plant (NSW)</td>
<td>Sydney</td>
<td>15-20%</td>
</tr>
<tr>
<td>Perth Seawater Desalination Plant (WA)</td>
<td>Perth</td>
<td>18%</td>
</tr>
<tr>
<td>Port Stanvac Desalination Plant (SA)</td>
<td>Adelaide</td>
<td>Up to 50%</td>
</tr>
<tr>
<td>Southern Seawater Desalination Plant (WA)</td>
<td>Perth</td>
<td>30%</td>
</tr>
<tr>
<td>Wonthaggi Desalination Plant (VIC)</td>
<td>Melbourne</td>
<td>33%</td>
</tr>
</tbody>
</table>
CASE STUDY

Bathroom beats

4 minute showers

One way the community can reduce water use is inside the home, with showers being the single largest water use in the house.

Water utilities are finding innovative ways to encourage the community to save water including Queensland Urban Utilities bathroom beats. A shower playlist on Spotify of more than 100 water-themed songs that run no longer than 4 minutes.

CASE STUDY

Regional councils helping customers save water through Smart Water Advice

20%

REDUCTION IN WATER USE FOR BOURKE SHIRE

Delivered by SAWM, Smart Water Advice is a water efficiency resource for councils and water utilities with 66 subscribers across Australia. Bourke Shire Council purchased water timers and pamphlets for their community noting a reduction of water use around 20% since their introduction. In Walcha, the Council has used posters in shop fronts, on social media and in local media to deliver water saving messages with humour during a difficult time for residents and businesses. In Tamworth, Smart Water Advice has completed water audits of the top 50 large water using businesses and identified potential savings of up to 23%. The Council has also sent over 1000 accommodation kits containing shower timers, door hangers, stickers and table cards encouraging water efficient behaviours.

CASE STUDY

Water Efficiency Labelling and Standards

100 gigalitres

SAVED IN 2017 – 18

The Water Efficiency Labelling and Standards (WELS) scheme is a national scheme to help Australian’s save water in their homes. WELS reduces demand for drinking water by informing consumers about water efficiency at the point of sale. Under the scheme products such as taps, toilets and shower heads must be tested under standardised conditions by a government regulator. Each product is given a comparative rating score to indicate the product’s efficiency (between 1 and 6 stars). In 2017-18 the WELS scheme helped save 100GL of water and by 2021 the use of water efficient products will help reduce domestic water use by an estimated 150,000 million litres each year.
Affordability

The industry is conscious of the impact of bills on consumers and nationally water bills on average have remained stable over the last 5 to 7 years. Where they are rising, they are rising gradually giving consumers time to adjust. We do not anticipate any major increases to bills in the short term.

In comparison with other essential services, water is still relatively affordable.

Urban water utilities continue to expand and deepen their customer and community engagement, particularly around pricing. In Victoria, the 2018 water price review saw an unprecedented level of customer engagement by the water sector. In total, the 17 water corporations heard the views of over 150,000 customers on water services, prices and investment.3

National water and wastewater prices

Water affordability, Australian Infrastructure Audit 2019, Fig25

Note: Values are inflation adjusted to June 2016.

Source: University of NSW City Futures Research Centre and Astrolabe Group analysis of Australian Bureau of Statistics (2019), Bureau of Meteorology (2019)23

4 University of NSW City Futures Research Centre and Astrolabe Group 2019, Australia’s Household Infrastructure Bill: Analysis Report

Sydney Water’s Operating Licence 2019-2023 and Price Proposal 2020-24 has been informed by over 10,000 customer interactions. In another recent example, over June and July 2019 Western Water held Community Panel meetings (citizen’s jury) to consider the Tariff Structure Review and make their recommendations. The recommendations from the Panel will be considered to the greatest extent possible as Western Water develops its price submission for 2020.

Average Australian household’s weekly infrastructure spend

Water affordability, Australian Infrastructure Audit 2019, Fig25

Source: University of NSW City Futures Research Centre and Astrolabe Group analysis of Australian Bureau of Statistics (2019), Bureau of Meteorology (2019)23
Water utilities are responding to drought

Water efficiency

Water efficiency remains critical for both customers and utilities and is an essential part of ensuring protection for future climate scenarios.

While the next level of water efficiency gains may be hard to achieve and could be more costly, water utilities across the country are investing in world leading water efficiency knowledge and engagement. Customer research by WSAA and its members shows that water efficiency remains an important issue for customers (even when not in drought) and many want their water utility to support them to do more.

Because of the severity of the current drought many rural towns and some cities have had to introduce water restrictions. During times of scarcity water restrictions are a fair way of ensuring everyone retains access to this precious resource. At these times, where possible the industry recognises the importance of maintaining community assets such as sporting fields and public open space.

Along with water efficiency programs and reducing leaks, water restrictions are another tool that can be used to reduce water use to address short term supply issues. Temporary water restrictions have an impact on reducing water use and can contribute to a step change in water use like during and after the Millennium Drought.

CASE STUDY

Tap In

<table>
<thead>
<tr>
<th>45</th>
<th>9</th>
<th>7,000</th>
<th>14,500</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOCUS GROUPS</td>
<td>LARGE SCALE CUSTOMER WORKSHOPS</td>
<td>ONLINE SURVEYS COMPLETED</td>
<td>ONLINE PORTAL LOGINS</td>
</tr>
</tbody>
</table>

Tap In, launched in late 2016, was Water Corporation’s state-wide community engagement and customer research program run over 18 months. It was designed to help identify which issues are most important to customers, which solutions customers most value and their willingness to pay for each of those solutions. Interestingly customer expectations around environmental management, and a strong preference for sustainable water sources came through as some of the most important issues for customers. They would also like to see the community educated and supported to do more to reduce their water consumption. They expect Water Corporation to inform the community about water saving solutions, increase their water knowledge, and monitor, manage and help them to reduce their water usage.
Reducing leaks

In an era where permanent water saving rules are the norm, campaigns are a reminder that every drop counts. Leakage reduction activities by water utilities also have the potential to conserve water and with a drive to improve customer experience utilities are seeking to minimise leaks and breaks and reduce water waste.

While non-revenue water losses at around 10 per cent on average are low when compared globally, Australian utilities continue to investigate the factors contributing to leakage and seek to cost effectively address the impacts. Strategies to help include:

- Pressure management
- Active leak control
- Pipeline and asset management
- Speed and quality of repairs.

CASE STUDY

Love Water

10% REDUCTION IN WATER USE

Hunter Water’s Love Water campaign encourages customers to work with the utility and wider community to reduce water consumption. Customers in the region are using on average 200 litres per day, which is about 10-20% more than the most water efficient communities in Australia. Love Water helps customers become more aware of their relationship with water and learn ways to conserve our most precious resource. The campaign’s emotive language was designed to support an emotional connection between customers and the water they use, and influence social and behavioural change over the long term. Under the Love Water campaign Hunter Water offers water efficiency advice and integrates its key messages through sponsorship, community grants and learning programmes. This approach is coupled with an intensive effort to drive down leakage within the network as part of a collaborative approach to conserve water.

After one year, Hunter Water are seeing promising signs of success from Love Water with early modelling suggesting that customers are using about four per cent less water than they otherwise would have been, taking into account climate variations.

CASE STUDY

Adelaide smart water network

40+ WATER MAIN INCIDENTS PRE-EMPTED

-70% REDUCTION IN REACTIVE WORK

50% SAVINGS BY PROACTIVE REPAIR

In July 2017, SA Water implemented the first stage of its smart water network, integrating more than 400 sensors and meters across the Adelaide CBD. This equipment is paired with a world-leading analytics platform, providing a detailed picture of the water network. At a cost of $4 million, it was the largest of its kind in Australia. The technology has enabled SA Water to identify and pro actively fix leaks before they impact customers. i.e. work is scheduled to have minimal impact (often at night – while the city sleeps) on customers and commuters. Building on a successful trial in the city, SA Water has expanded the innovative technology to two Adelaide suburbs and two regional towns, and are also piloting a smart wastewater network in two additional targeted areas of South Australia.

CASE STUDY

CRC Pipes

3 year PROJECT

$24 million FUNDING

In Australia there over 260,000 kilometres of water and sewerage pipes – enough to go around the earth more than 6 times. Around 70 per cent of it is underground and often forgotten – until there is a pipe burst under a major road. The inconvenience it creates is a growing issue in our busy cities and towns, but replacing kilometres of pipes is a very costly exercise. The Australian Government, through the Cooperative Research Centre, has funded $3 million to this partnership, comprising of 30 project partners (utilities, universities, manufacturers, applicators and organisations) – and led by the WSAA, from around the globe. The project itself is valued at a total of over $24 million which will be funded from the project partners. The project started on 1 March 2018 and will run for 3 years. Pipe lining technology has the potential to substantially increase the service life of pipes by up to 50 years at a lower cost. Through this project new materials and technologies, including smart robotics and sensors, are being investigated. In addition to a longer life of these assets, these technologies have the potential to reduce customer bills and minimise pipe bursts, leaks and the associated inconvenience to customers.
Focusing on the future

“While we all value water as a vital part of our daily lives, few understand its true value”
Australian Infrastructure Audit 2019.

Ironically it is often only during drought that we begin to recognise the true value of water. It highlights the longer-term issues in providing water for future generations. With assets that last up to 100 years, the industry has always taken a long term view on water security. In dealing with long term water security the industry needs to respond to a number of drivers including population growth, climate change and the need to ensure sufficient water for liveable communities.

Population growth

Based on current trends, Australia’s population is projected to reach 30 million people between 2029 and 2033, according to the Australian Bureau of Statistics (ABS) (November 2018). Looking further ahead, based on the medium of the main projection assumption series, Australia could add a further 10 million to its current 25 million by the year 2043. Around 80 per cent of this growth will occur in Australia’s five largest cities – Sydney, Melbourne, Brisbane, Perth and Adelaide.

Australia’s population growth is among the highest of any industrialised country – 1.8 per cent per annum, compared to the global average of just over 1.5 per cent. In addition, our population is densifying and we are one of the most urbanised populations in the world.

With this growth comes opportunities and challenges. Growth allows us to create new innovative communities that are water efficient and great places to live. Growth also requires planners and utilities to work together to maintain affordability to ensure liveable, sustainable and productive cities.

Projected population, Australia

Source: Australian Bureau of Statistics
Climate change

“Of all the forms of infrastructure, the potential risks and costs of climate change are greatest in the water sector”

Australian Infrastructure Audit 2019 released 19 August 2019.

Australia’s weather and climate continues to change in response to a warming global climate. Australia is projected to experience increases in sea and air temperatures, with more hot days and fewer cool extremes. This will be combined with decreases in rainfall across southern Australia with more time in drought, but an increase in intense heavy rainfall throughout Australia. The warming climate has also seen an increase in the frequency of extreme heat events and increased the severity of drought conditions.

Extreme weather events such as intense rainfall, heat waves, lightening strikes and resulting floods and fires can impact infrastructure (roads, assets) and interrupt essential services such as power and telecommunications. Other risks to the water industry assets include increased rates of corrosion that can shorten asset life, inundation from floods or storm surges, and impacts from fires.

The water industry understands the need to plan for uncertainty and to be agile and flexible in its approach. In response, WSAA and its members have developed tools and guidelines to manage the impacts of climate change. An example is WSAA’s Climate Change Adaptation Guidelines which provides the Australian and New Zealand water industry with consistent, clear and practical guidance in building climate resilience across all aspects of a water utility business. The Guidelines draw upon the experience of the water industry, identify current best practice and provide clear principles to guide the industry forward in a pragmatic and defensible approach to adaptation.

CASE STUDY

AdaptWater

AdaptWater™ Tool is an online climate change adaptation and asset-planning tool designed to resolve the complex nature of climate change related business decision-making. The tool provides centralised hazard mapping, identifies climate change impacts, and quantifies costs of adaptation approaches. The tool is designed to quantify the risks of climate change and extreme events, and perform cost benefit analysis of proposed adaptation options. It can quantify the impact of climate hazards on water supply and sewerage assets, and calculate the risk to the utility in both financial and non-financial terms. As well as producing graphical representations, the tool can compare adaption options, enabling the prioritisation of options. AdaptWater™, is already being used to improve Sydney Water’s knowledge of system resilience of individual assets – from small sections of pipe to multi-million dollar treatment plants.
Water’s broader role in people’s lives

Water is not new to the conversation on liveable cities. Clean, reliable and affordable water and wastewater services are fundamental to life, health outcomes and the economy. The Australian urban water sector is well trusted by the community with a long history of providing safe drinking water and effective wastewater services. These core services are fundamental to cities and regions and are in many ways as fundamental as transport systems in shaping the health, wealth and well being of Australia’s urban centres.

But policy makers and governments are now recognising the broader role water plays in shaping cities and communities. Australian cities are recognised as some of the most liveable in the world and water plays a vital role in improving liveability and prosperity in cities.

Water utilities are also proactively exploring how they can deliver greater community value through initiatives focused on water sensitive cities. As cities develop further from the coastal origins temperatures rise and rainfall typically decreases. This makes the role of water even more critical. The water industry enables broader liveability outcomes through:

- The provision of water and land for green parks, open space and corridors to support active, healthy lifestyles and promote walking and cycling.
- Supporting clean, healthy beaches and waterways with community and ecosystem benefits.
- Supporting cool environments by using water and greening to reduce heat in the urban landscape, providing resilience to chronic and acute heat events.
- Improving air quality.
- Unlocking the most value out of our assets through the investigation of circular economy hubs and renewable energy generation.

To realise this vision we need a new planning framework. A collaborative, integrated approach that focuses on optimising outcomes across the whole of the urban water cycle will benefit communities and water business in the long term. Many water businesses are already leading the way, delivering great outcomes beyond their core services.

### CASE STUDY

**West Parkland City and Aerotropolis**

- **60,000** new homes
- **$20 billion** public funding

Over the next 20 years, Western Sydney’s population is expected to grow by another million, contributing to more than half of Sydney’s overall expected population growth. The ‘Western Parkland City’ is earmarked to accommodate a significant portion of population growth. This urbanisation will place major pressure on the health of the South Creek catchment, its tributaries and the local environment and pose significant challenges in meeting a much higher community demand for water, wastewater and stormwater services in one of the hottest, driest and flattest parts of Greater Sydney.

$20 billion of public funding will be invested to develop the Airport, Aerotropolis and surrounding precinct. Connecting jobs, health, education and lifestyle, the 11,200-hectare Western Sydney Aerotropolis will be the City’s fourth metropolitan centre and its newest economic and residential hub, with up to 60,000 new homes.

The Greater Sydney Commission’s vision for a highly productive and liveable Western Parkland City, that suffers from increasing number of hot days above 35°C with the rainfall that London receives, is central to realising the Government’s vision for Greater Sydney. To do this, it will need to offer a ‘cool and green’ environment, attractive urban communities and appealing places to live, work and play. Water is essential to increase the urban tree canopy, maintain shaded, open and green spaces, and support water features in the landscape. Stakeholders have agreed it will take a new form of planning and management to create this vision and so a new waterway manager will take care of all forms of water management which is better for planning, operations and accountability.
Landmark work by Frontier Economics for WSAA has quantified the health benefits to the community from investing in water to create liveable cities. While the water industry is known for providing high quality drinking water and wastewater services, many are not aware of the larger role the industry has to play in the liveability of our communities. WSAA engaged Frontier Economics to assist in understanding and quantifying the liveability associated health benefits of water industry investments to better inform investment decisions.

Clean water is fundamental to public health. But investing in urban water to create liveable cities improves health through four pathways:

- Improvements in health resulting from more active recreation
- Improvements in mental health resulting from more exposure to green space
- Improvements in health resulting from reduced temperatures associated with the Urban Heat Island effect
- Improvements in health resulting from lower air pollution.

The work includes case studies that show investing in water in major greenfield developments will have benefits across all four pathways. A ready reckoner tool has also been developed to assist the water industry in making quick appraisals as to whether a project may deliver quantifiable health benefits under the four pathways.

Melbourne’s western suburbs are some of the fastest growing in Australia. They receive less rainfall than other parts of Melbourne meaning they’re drier and can experience warmer daytime temperatures. As the population increases, so too does pollution, heat stress and pressure on the environment. In addition, community health in the region is currently reported as poor with issues such as diabetes, obesity, heat stress and damaging effects of air pollution. Urban greening has been recognised as a low-cost strategy that will bring high impact results – environmentally, economically and crucially, for the health and well being of the residents who live there.

Following a think tank organised by City West Water, an alliance of stakeholders with an interest in urban greening was formed to share knowledge, promote and implement solutions together. Goals include: joint advocacy for better planning outcomes, community education and new opportunities through collaboration. Through collaboration the above targets are set to be achieved. As part of the initiative the 1 millionth tree was planted in the western suburbs of Melbourne at the end of 2018.
CASE STUDY

Target 155

Target 155 is a voluntary water efficiency program that encourages metropolitan Melbourne households to use water efficiently, aiming for 155 litres per person per day. Residential water use across Melbourne was 161 litres per person per day in 2017/18. In working towards Target 155 consumers are being reminded how they can help reduce water. Target 155 is being implemented by five Victorian water utilities: City West Water, Melbourne Water, South East Water, Western Water and Yarra Valley Water.

CASE STUDY

Adelaide Plains

$155.6 million

60% increase

SCHEME

IN RECYCLED IRRIGATION WATER

One of the key initiatives by SA Water to increase access to recycled water for irrigation, is the $155.6 million Northern Adelaide Irrigation Scheme (NAIS). Through a new advanced water recycling plant within the utility’s Bolivar precinct, above and below ground storage, a 31-kilometre transfer main and soon to be constructed distribution network, the NAIS will treat, store and transport high-quality climate-independent water to the Northern Adelaide Plains for new investments or expansion planning.

The NAIS is jointly funded by the South Australian and Australian Governments (Federal National Water Infrastructure Development Fund). Once complete, the scheme will provide for an additional 12 gigalitres of recycled water suitable for various commercial food production, and is on track to produce first water by late 2019.
Next steps

All policy options need to be on the table

Water security is about balancing the future supply of water with future demand. With predicted decreases in rainfall and an increasing population, collaboration and integration with other sectors will be important to ensuring our communities remain liveable and our economy remains productive.

Collaboration between all levels of government, potentially coordinated nationally, may be important to ensuring all water supply options are on the table.

Most cities and regions in Australia have diversified their water supplies to improve water security. All options should be on the table to allow customers and communities to make fully informed decisions. These options include desalination, dams, water efficiency and all forms of water recycling – including purified recycled water for drinking.

Some 35 cities worldwide now rely on purified recycled water as part of their drinking water supply, including in Europe, Singapore, the United States and Southern Africa. Many more are considering implementation, particularly in dry climates. Despite its potential benefits, uptake of purified recycled water has remained limited in Australia so far.

Integrating stormwater into the urban water cycle

Many of the broader liveability outcomes from water rely on incorporating innovative stormwater solutions with reuse of wastewater. However, currently there are many institutional barriers to integrating stormwater into the urban water cycle.

The opportunities from integrated planning and management of stormwater includes:

• More efficient and streamlined planning and delivery processes
• Improved social amenity
• Health benefits through a reduction in the heat island effect
• Increase in property values and economic activity through improved aesthetics
• Economic benefits from healthy waterways such as tourism and commercial fishing.

To meet the challenges and realise the opportunities for stormwater there needs to be better coordination across stakeholders and engagement of customer and the community in determining their needs and preferences.

CASE STUDY

Groundwater replenishment

Groundwater replenishment is where treated wastewater is further treated to drinking water standards and recharged into groundwater supplies. The water can then be stored in underground aquifers, which store and naturally filter the water until its needed. Australia’s first full-scale Groundwater Replenishment Scheme is located in Perth’s northern suburbs, in Craigie, Western Australia. It started recharging recycled water to Perth’s deep aquifers in 2017.
A new national water initiative

The developments over the last year reinforce WSAA’s call for a new National Water Initiative (NWI) that includes a focus on urban water. The challenges are the same across Australia and experience has shown that joint national action is more effective than ad hoc approaches.

A new NWI should recognise the future challenges of climate change and extreme events, urban growth (including population growth) and liveability of our cities and regions across the urban water cycle.

City Deals have provided cut through to secure the future prosperity and liveability of our cities. Seven deals have been agreed to date. An updated NWI would provide the template to incorporate urban water outcomes in future deals.

Components of a revised National Water Initiative

**All options on the table**

There is a need for national leadership to ensure all options remain on the table for drinking water supplies and to facilitate engagement and dialogue with local communities.

**Stormwater and drainage**

The National Water Initiative should also be updated to reflect the role stormwater management can play in the overall urban water cycle and in creating and maintaining liveable cities and communities. This can be through harvesting, reuse or use in creating green spaces in Australian cities.

**Economic regulation**

There have been a number of positive developments in economic regulation across NSW, Victoria, ACT, Tasmania and South Australia which deliver better outcomes for customers. However, the coverage of economic regulation elsewhere remains patchy and encouraging independent economic regulation should form part of a new NWI.

**Collaboration**

Improved collaboration between Federal, State and local government agencies, water utilities and other stakeholders for long term water security planning that includes the latest science for climate change.

**Improved data and transparency**

WSAA overwhelmingly supports the role of a national reporting framework that provides transparency around the management of urban water resources. Australia is unique in having the National Performance Report however, in its current form the Report is showing its age and needs reforming to ensure it aligns with contemporary industry focus and challenges. WSAA agrees with Infrastructure Australia that ‘urban water performance reporting and data is not fit for purpose’5. Accurate data is important to ensure governments and operators can make informed decisions.

**Sustainable Development Goal (SDG) 6: Clean water and sanitation**

In December 2018, COAG committed to forming a genuine formal partnership with Aboriginal and Torres Strait Islander peoples to finalise the Closing the Gap Refresh and provide a forum for ongoing engagement. Infrastructure Australia’s recent Audit found there is evidence that SDG 6 is not being met in many remote communities, predominantly with Aboriginal and Torres Strait Islander populations. A new NWI would provide an incentive based framework for meeting our obligations under the SDGs.

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5 Australian Infrastructure Audit 2019, released 13 August 2019