

Appendix 1
Case studies



No. Australian case studies	Location	Outcomes
The broader economic benefits of effective water and sewerage provision		
1 The value of clean beaches	Sydney	
2 More value than just water and sewerage	ACT	
Water businesses delivering more than just water and sewerage		
3 Greening the pipeline	Melbourne	
4 Using water industry know how in a new way	Bendigo	
5 Irrigating Adelaide's airport	Adelaide	
6 Using offsets to deliver biodiversity and waterway health	Brisbane	
7 A sewage treatment plant for all	Sunshine Coast	
8 Water only schools	Shepparton	
Rethinking internal processes, services and skills to create shared value		
9 Renewable energy	Melbourne, Sydney	
10 Energy generation – a paradigm shift for a water utility	Melbourne	
11 Helping not hindering – support for domestic violence victims	Melbourne	
12 Creating shared value	Frankston, Melbourne	
Collaboration and integrated planning to deliver better value for communities		
13 Cooks River bank naturalisation	Inner West, Sydney	
14 Greening the West	Western suburbs, Melbourne	
15 Fishermans Bend – Integrated planning for the community	Inner suburbs, Melbourne	
16 The Urban Water Cycle planning guide	Geelong	
Government facilitating collaboration and integrated planning		
17 The Victorian Water Plan	Victoria	
18 Water and economic development	Adelaide	
19 Buffertopia	Western Australia	
Working with customers and communities to define broader value		
20 Making the Parramatta River swimmable again	Western Sydney	
21 Our space, your place	Melbourne	
22 Using engagement to find a solution	Northern Territory	
23 Understanding customer views on stormwater	Sydney	

Water business outcomes

- Financial benefits
- Improved reputation
- Improved community and stakeholder relationships
- Improved business capability
- New products and services

Government and community outcomes

- Economic growth and development
- Better health outcomes
- Better social outcomes
- Better environmental outcomes
- Resilience
- Engaged and active community



Case study 1

The value of clean beaches

Sydney Water

This case study showcases

The broader economic benefits of effective water and sewerage provision

Problem

Beaches contribute to the 'liveability' of a city. Beaches provide plentiful opportunities for recreation for people from all walks of life, and cater to varying interests. Beaches are a place to swim, surf, play, relax, spend time with friends and family or simply enjoy the view.

If water quality at the beach is poor, swimmers may become ill, biodiversity may suffer, and the beach experience would be less enjoyable overall.

Sydney Water has made a number of infrastructure investments which have improved water quality in key beaches over the years. For example, the old cliff-face outfalls at Manly, Bondi and Malabar were decommissioned and replaced with the Deepwater Ocean Outfall, alongside other changes to wastewater treatment, beneficial reuse and trade waste.

In order to fully understand the value in this investment, the economic and social value generated from the improvements in water quality must be taken into account. These impacts are challenging to measure.

Solution

A report by Deloitte Access Economics considers the wider benefits and contributions improved water quality has on Sydney beaches. A range of economic modelling and other estimation techniques were used to get a sense of the quantum of benefits associated with beaches, and with cleaner water at beaches.

This study considered five potential benefits and contributions

Tourism contribution – domestic and international

Health benefits (e.g. reduced absenteeism) with a reduction in sewage pollutants

Value for Sydney residents – direct uses, amenity for future generations

Biodiversity benefits (not quantified)

Brand benefits (not quantified)

The study estimated that

the value attributable to coastal beach water quality – for Sydney residents alone – is in the order of \$137 million per year or a lifetime value of around \$2 billion.

the net value added associated with beach water quality is worth around \$332 million per year to the NSW economy through domestic and international tourism

the **health benefits** associated with beach water quality due to the avoidance of illness for beach users is estimated at \$140 million per year from avoided absenteeism

In addition to the economic benefits there were also intangible benefits associated with biodiversity and brand value.

Business case

Sydney Water makes a significant infrastructure investment to improve water quality in Sydney beaches. This study can help to justify future investment in this area by making decisions commensurate to actual benefit.

Key drivers

Understanding the broader benefits that Sydney Water can provide through their infrastructure investments.

Benefit/outcome

The broader benefits Sydney Water provides to the community by maintaining good water quality at Sydney beaches include:

Ability to keep beaches open for recreational activities for local residents

Amenity of beaches and knowing the water is clean and pristine (even for those that don't swim or visit).

Enhanced tourism from both domestic and international visitors

Decreased incidence of gastrointestinal, respiratory, eye and ear conditions related to sewage pollutants.

Improved biodiversity at the shore, reduction in pollutants.

Brand value for Sydney.



Case study 2

More value than just water and sewerage services

Icon water, Melbourne Water and others

This case study showcases

the broader benefits of effective water and sewerage provision

Examples

Recreation and biodiversity are some of the additional outcomes of business as usual activities. Some key examples include:

Drinking water supply catchments are managed to ensure water quality is maintained through healthy natural landscapes and these management activities deliver both safe drinking water and biodiversity and conservation outcomes to the community.

The management and maintenance of roads for asset management in catchments and to water assets can

provide for safe public access for recreation, and also serve as access to manage hazards such as bushfire.

Buffer zones, that are essential to prevent incompatible land use around treatment plants, not only reduces the impact of noise and odour to the community, they also provide open space for recreation and habitat for native and threatened species.

Wastewater treatment lagoons provide habitat for certain species of birds and frogs and are a great attraction for the community, bird watchers and conservation scientists.

Fyshwick Sewage Treatment Plant adjacent to Jerrabomberra Wetlands in ACT is a particularly important haven for protected migratory birds when their inland habitats are suffering in drought conditions, and is

a key monitoring location for the Canberra Ornithological Group's annual bird population surveys which are used by the ACT Conservation Unit.

Lagoon habitats within the Melbourne Water Western Treatment Plant and the adjacent shoreline are renowned as important locations for waterbirds on a local, national and international scale and the plant is home to various native flora, fauna and migratory birds. Over 120 different waterbird species have been documented, including residents, annual migrants, nomads and vagrant visitors. This includes a number of waterbird species listed on international migratory bird agreements as well as species considered to be threatened at both the state and national level.



Case study 3

Greening the Pipeline

Melbourne Water

This case study showcases

water businesses delivering more than just water and sewerage provision

how collaboration and integrated planning deliver better value for communities

Problem

The Main Outfall Sewer (MOS) is a 27km disused sewer running through between the suburbs of Spotswood and Werribee, in Melbourne's west. It was built in the 1890s, an engineering feat at the time, and was then decommissioned in 1993 but remains heritage listed to this today. A combination of open concrete lined channels and covered brick lined concrete, it is costly to maintain and in poor condition for most of its length. In 2005, ownership of the surrounding reserve was transferred from Melbourne Water to VicRoads, who built the Federation Trail bicycle path along the length. Despite this, in its current state the MOS provides little community benefit, poses a potential safety hazard, acts as a physical barrier between communities and lacks any amenity benefits. The MOS runs through an area which is one of highest residential growth areas in Australia, has few existing green spaces and suffers from significant heat stress.

Solution

The Greening the Pipeline initiative aims to transform MOS pipeline reserve into a multi-use, natural and vibrant space that will connect communities and provide a

unique place for neighbours to meet, play and relax. This project is being undertaken in a partnership between Melbourne Water, Wyndham City Council, City West Water and VicRoads. Green shady spaces will support the Federation Trail bicycle path and local community needs, as well as counteract heat stress in the area. To showcase the potential of the reserve as a green linear parkland, a pilot project has been initiated by Melbourne Water in Williams Landing, part funded by a State Government grant supporting demonstration sites for integrated water management. The Williams Landing pilot captures and reuses local stormwater to irrigate grass, shrubs and trees in a new community parkland built along the reserve. Community consultation has revealed strong support for the project and final designs for the pilot are complete, with construction due for completion in early 2017.

Business case

This project relies on external funding, which may come in the form of government grants or community funding. High Line in New York is a similar example, which relied on a mix of public grants and private donations for construction, and where the Friends of the High Line continues to raise approximately 98% of the annual budget to maintain and operate the park. Given the GTP project runs over 27km, key zones are being

prioritised and works will be staged as funding is secured.

Key drivers

A strong vision, collaboration with key stakeholders and community engagement are all key to the success of the project.

The vision for the GTP project was initially driven by Melbourne Water, and it has been an important journey to translate this into a joint vision which is accepted and driven by the community and key stakeholders.

Rigorous governance frameworks were set up by Melbourne Water to facilitate the GTP project and coordination between stakeholders

Given the reliance on external funding, Melbourne Water identified the need for strong community buy in to advocate for the project. As such, there has been focus on a marketing campaign and the pilot site, which has been used successfully to inspire a vision for the project within the community.

Benefit/outcome

Improved amenity for the local community

Physical and mental wellbeing benefits, particularly the promotion of active transport.

Enable connectivity within and between communities

Reduce urban heat stress in the area.

Engage local community



Case study 4

Using water industry know-how in a new way

Managing rising groundwater following mining activity

Coliban Water

This case study showcases

water businesses delivering more than just water and sewerage provision

Problem

Following the cessation of gold mining beneath Bendigo in 2011, groundwater has been rising back to the surface. This poses a number of issues including:

The inundation of key tourist attractions such as Central Deborah tourist mine, as well as well frequented and valued spots in the CBD such as the botanical gardens and city square.

Risk of discharges into local waterways, bringing with it odour and compounds such as salts and metals, with detrimental effects on the environment and local amenity.

Salinity damaging urban infrastructure.

Residue drying from pumping groundwater into evaporation ponds bringing up dust with arsenic content which is a concern to the local community.

Solution

Through a collaborative process, led by the Victorian Government through the Department of Environment, Land, Water and Planning Victoria (DELWP) in partnership with Coliban Water, a number of key state government, local agencies and community groups have been involved in reviewing and recommending the preferred solution for the next four years. Coliban Water is delivering this 'transitional option' as it was recognised they had the expertise, infrastructure, relationships with key agencies, and perhaps most importantly, a high level of trust within the community to deliver the solution for this complex issue. The transitional solution agreed upon involves pumping groundwater from the North New Moon mine shaft, treating it to remove arsenic, rotten egg gas, other metals and salt and storing the brine at the Epsom Water Treatment Plant, with treated water discharged to this environment.

Business case

State government funding of \$1.5 million for the project was used to fund the feasibility stage of the project. From Coliban Water's perspective, the community benefits far outweighed the potential risks of being involved. Coliban Water's commitment to the community, underpinned by its vision of Water to Live, Grow and Enjoy has enabled the project to proceed.

Key drivers

The Victorian Government facilitated the project financially as well as by bringing together key agencies and actively involving the community. The key driver for Coliban Water was to provide broader community benefit, as a valued and trusted member of the community. Coliban Water believed they were the best placed agency to deal with the issue for the transition period, while DELWP progressed planning to identify a solution for the long term.

Benefit/outcome

Improvement of waterways and improved environmental quality

Protection of tourist icon and infrastructure in Bendigo.

Reputation benefits for Coliban Water as a trusted organisation with community support

Increased organisational capability for Coliban Water.

Improved relationships between key agencies – project a model for processes between water utilities and state government, councils, EPA etc.



Case study 5

Irrigating Adelaide's Airport for a heat reduction trial

SA Water

This case study showcases

water businesses delivering more than just water and sewerage provision

Problem

With increased summer and autumn temperatures in Adelaide expected to occur as a result of climate change, investigations are occurring as to how these impacts may be best managed. Impacts of a hot and dry landscape at an international airport can include load restrictions of aircraft (high air temperature reduces the amount of weight a plane can carry), higher energy use in cooling towers in passenger terminals, dust generation from areas of bare earth, increased bird activity related to the bare earth (easy access to seeds and invertebrates), and increased erosion.

Solution

One of the more passive methods for heat reduction is through the irrigation of open space and green infrastructure to enhance the evapotranspiration of the vegetation and hence cool the air in the vicinity of the irrigated zone. A two year trial has been established at the Adelaide Airport to study the possible temperature reductions that can be achieved through irrigation of open space. The overall project site covers around 30 hectares, of which 4 hectares is irrigated with stormwater that has been captured and stored using the adjacent aquifer storage and recovery (ASR) scheme.

The aim of the trial is to quantify the temperature differences from open space irrigation and use this data to model the potential operational energy savings (in adjacent buildings) and aircraft operational fuel efficiency and safety. The project also aims to capture information in other critical areas to airport operations such as improved aesthetics, reduction in soil erosion and resultant dust, reduction in high risk bird populations, reduction in airfield maintenance requirements and the potential for primary production crops.

During the first year of the trial the key finding was that the average temperature difference between the irrigated and unirrigated area was 2.4 degrees. The next stage is to quantify how this temperature difference will benefit airport operations. Expansion to the entire airside area would utilise recycled water. This would enable beneficial reuse of the recycled water which, if not used for irrigation or industrial/commercial use, is discharged to the marine environment.

Business case

The actual business case has not yet been formalised as it is still in the data collection and collation phase. It is assumed that the financial and non-financial benefits that could include energy and fuel savings, reduced bird and dust risk. The production of crops which will provide the same temperature reduction and associated benefits also result in ability to gain income from the irrigated vegetation. This would demonstrate a good example of a circular economy.

Key drivers

To our knowledge this type of trial has never been conducted at a national or international airport for the purpose of temperature reduction. The project also gives SA Water the opportunity to undertake a trial of this nature in a controlled urban setting. The information gained from this trial can also be transferred to other settings where a trial of this nature would be difficult such as urban parks and sportsgrounds.



Case study 6

Using nutrient offsets to improve the Logan River

Queensland Urban Utilities

This case study showcases

water businesses delivering more than just water and sewerage provision

Problem

The Beaudesert Sewage Treatment Plant needed an upgrade to manage additional nitrogen discharges that occur during and after wet weather events when irrigators reduce their recycled water demands. At the same time, high rates of natural channel erosion in the Logan River was leading to a significant mass of sediment and nutrients entering the river.

Solution

Queensland Urban Utilities (QUU) used a nutrient offsets mechanism to improve Logan River in lieu of a nutrient removal upgrade of the Beaudesert STP. QUU re-engineered a 500 metre bank of the Logan River to prevent more than 11kT of sediment, 5T total nitrogen and 8T of total phosphorous from entering the waterway every year due to natural channel erosion. Controlling sediment and nutrient loads through a green infrastructure solution enabled Queensland Urban Utilities to cost effectively manage compliance with the STP's nutrient discharge limits, particularly in wetter than average years.

This approach was a pilot project for the Queensland Department of Environment and Heritage Protection (DEHP) *voluntary*

market based mechanism for nutrient management, which offers an alternative investment option under the *Environmental Protection Act 1994*. A waterway emission nutrient offset of five tonnes per year of total nitrogen was added to the environmental licence. QUU reduces future environmental licence compliance risk associated with climate change and allows time for adaptive planning to cost effectively service the projected population growth for Beaudesert.

Business case

The provision of a voluntary offset mechanism has allowed QUU to undertake riverbank restoration works at Logan River to reduce sediment and nutrient loads, thereby enabling QUU to comply with nutrient discharge limits at Beaudesert STP and avoiding a costly upgrade. The \$800,000 water quality project was more cost effective than an \$8 million alternative to upgrade the Beaudesert Sewage Treatment Plant for partial biological nutrient removal (BNR). The green infrastructure solution also has significantly lower (~90%) annual operational costs (\$540k/yr BNR Vs \$40k/year offset), saving \$5 million over the life of the 10 year offset.

Key drivers

Planning flexibility – the offset provided QUU sufficient time to understand local

population growth forecasts and integrate sewerage loads from a nearby planned 'State significant' inter-state freight-train intermodal terminal into master planning for a new regional STP in the Beaudesert area.

Environmental leadership – nutrient offsets had been talked about for many years in South East Queensland. It was time for a pilot project to show how it could be done and to get the scientific community to challenge the assumptions and continually improve the voluntary mechanism policy in Queensland.

Financial sustainability – the offset was significantly better value for money for customers.

Benefit/outcome

Environmental sustainability – many intangible environmental benefits such as much lower GHG emissions, improved biodiversity (wildlife corridor) and stream cooling.

Community benefit – riparian land holders were losing around one metre of land per year on average due to river bank erosion. This project has reduced this to near zero.

Drinking water security – the offset location resides within a drinking water catchment where a significant supply risk is high turbidity events from channel erosion. This project is the first step to help address this problem.



Case study 7

A sewage treatment plant for all

Maleny Sewage Treatment Plant upgrade

Unitywater

This case study showcases

customer and community working with water businesses to define broader value

Problem

The Maleny Sewage Treatment Plant (STP) needed a capacity upgrade to cater for increased population growth in the region and improve treatment standards. In addition, the plant was discharging into the nearby Obi Obi Creek, which was a sensitive issue in the local community.

Solution

In addition to a treatment plant upgrade, Unitywater planted an adjacent forest and wetland on a former dairy farm site which acts to further treat the water from the STP.

From the STP, Class A effluent is pumped 1.4 kilometres to the Maleny Community Precinct where it irrigates 13.8 hectares of revegetated native forest. Any treated effluent that isn't used by the irrigated forest seeps through the soil profile into three hectares of wetlands. Incorporating the irrigation and wetlands as part of the sewage treatment process takes up residual nutrients, naturalising the water before it is released into the Obi Obi Creek and hence back into the water cycle.

The forest and wetlands have transformed a section of an old dairy farm into an important habitat for flora and fauna. Unitywater worked hand-in-hand with Sunshine Coast Council, local bushcare groups and the community to develop parts of the forest and wetlands system and align them with the Maleny Community Precinct Master Plan. This includes walking tracks and planting zones for the community to enjoy.

Business case

The business case put the preferred option (STP upgrade with a membrane bioreactor plus discharge to forest and wetlands) ahead on both cost and non-cost criteria, compared to six other options. Compared to other options, the \$17 million innovative approach of combining membrane bioreactor technology with natural processes saves up to \$18 million over the service life of the plant.

Key drivers

The Maleny community is well known in the region for being a passionate and tight knit community who is interested in preserving and enhancing the town. Unitywater was therefore well aware that the successful delivery of the upgraded

sewage treatment plant would require taking a partnership approach with the Sunshine Coast Council, the Maleny community and local indigenous groups, and involve close consultation and collaboration over several years.

Benefit/outcome

STP upgraded to meet needs of future growth in the region

Reputational benefits for Unitywater stemming from positive community engagement

Positive impact on health and water quality of Obi Obi Creek

Community spaces such as walking tracks and planting zones

Biodiversity benefits

Indigenous heritage protection

Recycled water provision to local organisations

Improved energy efficiency.



Case study 8

Water only schools

Goulburn Valley Water

This case study showcases

water businesses delivering more than just water and sewerage provision

Problem

Many parts of Australia, and particularly regional cities and towns, have a high incidence of health issues relating to obesity and other lifestyle diseases. High consumption of sugary drinks is a strong contributing factor and is associated with an increased risk of developing Type 2 diabetes, weight gain and obesity, as well as poor dental health. Lack of adequate hydration is also increasingly being linked to decreased cognitive function in children. Many communities lack education on the detrimental health effects of sugary drinks. Tap water is a healthy, hydrating and cheap alternative to soft drinks and other sugary drinks.

Solution

Active programs are offered in the Goulburn Valley and Barwon regions to engage schools in the benefit of drinking tap water.

Goulburn Valley Water's 'Water Only Schools' Program is offered to schools in the local community, where students are only allowed to drink water and plain

milk at schools. Students are not able to bring in other drinks into school or buy any other drinks. Goulburn Valley Water have also engaged local health organisations to assist in delivering a community education program which promotes the health, financial and environmental benefits of choosing tap water. While the program mainly targets students, staff and parents are also engaged through newsletters and other collateral.

Success in the Water Only Schools to has raised its profile of the program and a number of workplaces are now keen to be involved. 'Water Only Workplaces' launched in June 2016 with a number of local indigenous community service groups, for example the Rumbalara Aboriginal Co-operative which provides a range of support services for indigenous communities such as health and cultural activities. The program is also looking to expand into early childhood education – e.g. childcare, kindergartens and pre-schools.

Business case

The program is run at a very low cost to GVW, with some staff time and giveaways such as water bottles required during launch activities, but very little upkeep thereafter.

Key drivers

The initial idea for the 'Water Only Schools' program came from Barwon Water, who has been partnering Barwon Health on a similar program, H2Only, in Geelong. Developing a 'Water Only' program complimented Goulburn Valley Water's comprehensive education program. Goulburn Valley Water has taken the role of the lead agent (which in the Barwon region has been led by the health agency) and engaged local health organisations to partner and deliver the project. The program also complements the 'Be Smart – Choose Tap' campaign which has been developed by Yarra Valley Water and has shared with other Victorian utilities to create a strong and united 'brand' for tap water.

Benefit/outcome

Improved health, financial and environmental outcomes of the community through promotion of tap water

Improved partnerships between Goulburn Valley Water and community, as well as local health organisations.

Reputational benefits



Case study 9

Renewable energy

Melbourne Water, Sydney Water

This case study showcases:

water businesses delivering more than just water and sewerage provision

Problem

The Australian water sector is a large energy user during the supply, treatment and distribution of water. Energy use is heavily influenced by the requirement to pump water and sewage and by the nature of sewage treatment processes employed, and varies significantly from city to city and process to process. In a carbon constrained future, relying on non-renewable sources of energy will mean utilities and communities will face a number of challenges:

climate change impacts on society if greenhouse gas emissions are not curbed

shocks to energy price and supply variability

rising costs as more energy intensive options, such as recycled water, decentralised systems and desalination are considered.

understanding customer willingness to pay for less greenhouse intensive options

resolving environmental trade-off energy intensive nitrogen removal versus discharging it to the environment.

Solution

Many utilities are looking for renewable energy sources to meet their energy demands.

Sydney Water has built a diverse renewable energy portfolio made up of cogeneration, hydroelectricity and solar, which now accounts for approximately 20% of total

energy demand of the utility. Of this, cogeneration accounts for approximately 15% of energy production, having been rolled out in eight of the larger wastewater treatment plant sites. Sydney Water are now trialling co-digestion of sewage sludge and organic food wastes; reflecting a gradually changing mindset that Sydney Water could provide broader benefits as a 'waste services' provider by expanding its current capability treating one significant stream of waste. Hydroelectricity and a small amount of solar is also generated in suitable sites within the network. Notably, there has been some community interest in using Sydney Water land for community solar sites. Sydney Water has been approached by community based renewable energy groups or companies to discuss the potential to place solar PV systems on Sydney Water assets. The companies would fund the generation system and pay Sydney Water a royalty for access to the space. Sydney Water would also access sufficient 'behind the meter' electricity to power on-site assets, with the bulk of the power being exported to the grid. Reservoirs are the sites of main interest as these are large open spaces, but involve the challenge of finding suitable floating solar PV arrays.

Melbourne Water also have a significant renewable energy program. Nine mini hydros across Melbourne's water supply system generate 61,000 Megawatt hours of electricity each year – enough to power 9,000 households. In all, the water supply network generates more electricity than it uses. On the wastewater side, Melbourne Water captures biogas from the waste treatment processes at both treatment plants, and uses it to power 40% of the

electricity required for treatment processes. The Western Treatment Plant is on track to become energy self-sufficient (utilising its own biogas) in 2016/17. As part of its continued commitment to reduce its emissions, Melbourne Water also has a pipeline of R&D and commercialisation. These projects include algae for treatment and biofuel production, advanced biogas recovery and small scale hydro and solar generation.

Business case

Getting renewable energy projects approved is generally based on what makes good commercial sense – i.e. those projects where there is financial pay back over the life of the project, the ability to leverage and make 'quick wins' off the system (e.g. biogas from large wastewater treatment plants) and/or to reduce high supply costs or unreliability in supply (e.g. in some remote areas).

Under the currently electricity market there tends to be little incentive to feed electricity back into the grid and renewables need to offset a current energy use. This can limit feasibility of these projects down to a few suitable sites. More lucrative tariff structures such as a local network tariffs are being investigated as a means of facilitating renewable energy exports into the grid. Melbourne Water have negotiated offsetting of renewable energy generation between sites as part of their long term energy contract.

Customer research undertaken by Sydney Water has found that customers highly value utility efforts to pursue renewable energy projects; despite this there is

little willingness to pay over and above current bills. However due to this customer support and the broader environmental benefits, business cases can be approved on longer payback terms than a normal project. As part of Melbourne Water's recent pricing submission to the regulator, willingness to pay was undertaken to get an understanding of community support for renewables. This work showed that the community is willing to pay for a portion of Melbourne Water's energy to be sourced from renewables at a small premium.

Key drivers

Renewable energy is generally used to deliver projects and services at the lowest

cost to customers and the lowest impact to the environment.

Newer technologies or approaches are also facilitating the uptake of renewable energy solutions where they were not feasible previously.

Support for renewable energy varies from state to state. Strong policies, mandatory/voluntary targets or financing mechanisms can drive a push towards renewable energy solutions however to date the policy landscape across most states has been largely uncertain. Melbourne Water support the Treasurer of Victoria's new \$300 million green bonds initiative, which drives investment into projects that offer climate change and environmental benefits. Melbourne Water

projects that can be supported through the green bonds initiative include the construction of 9 additional mini hydros and improvements on the biogas capture and reuse at the Western Treatment Plant and Eastern Treatment Plant.

Benefit/outcome

Financial benefits – reduced energy costs and hedge against future price increases and insecurity of supply.

Reduction in greenhouse gas emissions/ climate change mitigation

Contribution to liveable and resilient cities.

Reputational benefits



Case study 10

Aurora food to waste energy plant

Yarra Valley Water

This case study showcases

water businesses delivering more than just water and sewerage provision

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

As the millennium drought hit, Yarra Valley Water investigated the augmentation of their satellite STPs to include recycled water provision, which would essentially drive up energy costs. Initial assessment of a number of renewable energy sources such as traditional cogeneration systems, wind, solar, etc. did not stack up economically for smaller sized plants. The Australian water sector is a large energy user during the supply, treatment and distribution of water. In an uncertain future, relying on non-renewable sources of energy will mean utilities and communities will face a number of challenges

climate change impacts on society if greenhouse gas emissions are not curbed

shocks to energy price and supply variability

rising costs as more energy intensive options, such as recycled water, decentralised systems and desalination are considered.

Solution

Yarra Valley Water is currently constructing a waste to energy facility next to the Aurora Sewage Treatment and Recycled Water Treatment Plants in Melbourne's north. A long standing

partnership with East Bay Municipal Utility District in California provided insights on what might be possible from co-digestion with food waste as a feasible renewable energy source. From a regulatory and cost standpoint, the best approach was to separate the sewage sludge and food waste processes and not integrate the two.

100 tonnes of food waste that was previously destined for landfill will be processed every day into biogas via anaerobic digestion. The site was strategically chosen for its location near the treatment facilities but also for its proximity to local food manufacturing as well as the wholesale markets in Epping. The plant is designed to divert 33,000 tonnes of waste per year from landfill, and power both treatment plants. The plant will be operational in early 2017.

Business case

The business case was reliant on taking an asset off the grid or selling to another customer, as contributing straight to the grid did not stack up economically.

Yarra Valley Water set up a separate entity. Commercial organic waste from local markets and manufacturers will be processed into biogas via anaerobic digestion. It is expected that enough energy will be generated to run the facility and the neighbouring Treatment Plants. Any surplus energy will be exported to the electricity grid, helping to reduce greenhouse gas emissions, and Yarra Valley Water's reliance on traditional sources of electricity.

Key drivers

With the economics finally in favour of renewables, the consideration of a food waste to energy plant was further sparked by a paradigm shift of Yarra Valley Water's role as a processor of waste, not just sewage: Yarra Valley Water already processed 75% of region's waste by volume – why not expand into other waste streams? This was achievable from a capacity and capability standpoint.

There was also strong community support to construct the plant which was achieved through strong community engagement throughout the project. The township of Aurora was built as an 'environmental showpiece' and providing recycled water via a renewable energy source contributed to this vision.

Benefit/outcome

Reduction of waste going to landfill

Reduction in greenhouse gas emissions.

Reduction of energy costs to utility (and less costs being passed on to customers)

Non-regulated revenue stream for the utility from gate fees to treating the waste

Sustainable energy source resilient to supply or price shocks.



Case study 11

Helping not hindering

Yarra Valley Water

This case study showcases

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

Keeping on top of water bills can be a challenge to many households that are experiencing difficult circumstance or financial stress. Those who experience domestic violence are especially vulnerable to financial risk.

Solution

The Yarra Valley Water hardship team evaluated its processes and touch points with these customers and put together some simple changes which enable Yarra Valley Water to effectively support and work with those experiencing

of domestic abuse, without causing extra burden. This includes flexible approaches to accessing the right support programs, founded on taking customers at their word – i.e. not requiring proof of domestic violence. The customer's safety is paramount and all processes are developed to ensure a more supported experience including; all customers who are identified as experiencing family violence are automatically transferred into the Customer Support Team where they have one point of contact, additional privacy and safety flags as well as flexible communication methods and payment plans.

Yarra Valley Water also embedded this approach within the organisation through:

Ongoing training and development for all staff that interact with clients. The training

module was developed with Kildonan Uniting Care. Contact Centre staff are also seconded into the hardship team to encourage a broader perspective and skills.

Staff Support through debriefing and discussion of difficult calls. This is an important aspect of staff retention at Yarra Valley Water. Staff in the Customer Support Team are trained to deal with a range of complex interactions. There is also additional assistance process in place, such as having another staff member listen in on the call to provide feedback and advice for particular situations.

Benefit/outcome

This method can lead to a number of broader community benefits including the reduction of mental health stress and financial burden on already strained individuals.



Case study 12

Creating shared value

South East Water

This case study showcases

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

Water businesses are all contributing to communities beyond their regulated requirements of water and sewerage provision. However many of these are opportunistic and personality driven. Many water businesses are exploring how they can take a more strategic approach to creating shared value and what they need to do within their own business.

Solution

South East Water is one of the three Metropolitan water retailers in Melbourne. They have proactively recognised the additional value they create as part of their business and are communicating it through their creating shared value program. The concept of shared value is about meaningful, long term value that delivers benefits to customers, the community and the business. South East Water's creating shared value program has a long-term approach, and:

Is aligned to its business' strategic objectives, supports the government's priorities, and meets one of the four key business-identified themes of education, liveability, innovation, and wellbeing.

Defines nine commitments to achieve, along with objectives, targets, and progress against the commitments.

Communicates these commitments to the public, stakeholders and their staff

Business case

When South East Water was looking to implement a refreshed and enhanced corporate social responsibility program, it soon became evident that what the business wanted matched with the philosophy of a creating shared value program approach. The retailer's aims were to enhance its reputation, engage with customers and community, respond to the state government's wishes about engaging with communities in meaningful ways, and boost employee engagement.

South East Water held workshops with employees and the Executive to gauge their thoughts on how the business should engage in the community or how it should approach sponsorship. They also analysed previous programs, partnerships and sponsorships to identify what worked and how it could improve. It was evident that much of what South East Water does as part of its business and its role as an essential service provider is creating shared value, and the feedback from employees highlighted this too.

There is minimal cost to setting up the program; the costs are mostly associated with how activities are supported. South East Water is continuing to explore more potential opportunities that reinforce its program, and are encouraging its people to value what they do and identify new or different ways they can create value.

For example, South East Water proudly supported SCOPE disability services by retrofitting water efficient appliances at five of their properties.

Key drivers

There were a number of drivers, with the main ones being: a desire to provide some structure and criteria around community engagement and support for activities, which would provide value for those we support while also having some benefit for us. We also wanted to help enhance our reputation, and provide a mechanism for explaining the variety of ways the essential service we provide has a positive effect on our community.

Benefit/outcome

The benefits of the Shared Value program are:

An enhanced reputation of the organisation

Improved community and stakeholder relationships

Embed the consideration of community value when evaluating business cases and investments



Case study 13

Cooks River bank naturalisation

Sydney Water together with: Sydney Metropolitan Catchment Management Authority, local councils, Cooks River stakeholders (incl. community)

This case study showcases

how collaboration and integrated planning deliver better value for communities

Problem

The Cooks River meanders through the inner South West of Sydney for some 23km before discharging into Botany Bay. The river was lined with concrete in the 1940's to reduce flooding. In the mid 2000s Sydney Water observed that sections of the concrete channel were starting to fail structurally and required renewal.

Solution

The need to renew this stormwater asset provided the opportunity to work towards a different future for the river and re-think the role of the Cooks River in the local community. Sydney Water and eight councils collaborated to develop a flood study and Masterplan for the river. The Masterplan and partnership model was also the basis for the naturalisation of 1100m of the river by Sydney Water in 2014–15. This project replaced the failing concrete riverbanks with more gently sloped banks stabilised with sandstone

and native plants as well as associated open space and cycleway amenities.

The community was highly supportive of the idea to renaturalise the river and remains engaged in the ongoing protection and management of the river. Collaboration with universities resulted in very valuable economics insights, as well as capacity increase for utility staff.

Business case

The project was supported by a federal government grant. An ongoing international research study is now mining historic sales data to determine the lift in house value as a function of the condition of a nearby river (and associated amenity).¹ The value of property across the Georges and Cooks River Catchments adjacent to waterways with natural channels and wide continuous vegetation canopy cover, was found to be up to 8.9% higher than property near a channelized waterways without canopy cover.

Key drivers

Need for asset renewal met a desire to do more than BAU.

Collaborative approach, with a committed group of project partners.

Very strong community support with over 80% in agreement with the project.

Benefit/outcome

The solution goes well beyond the original project need of flood protection.

Safety benefits: flood mitigation

Community benefits

Great uplift in amenity with new cycle paths, trees and open space, wetlands, ongoing engagement in maintaining and protecting the river, education and appreciation of saltmarsh with signposted viewing platform. Property value uplift by between 4.8% and 8.9%

Environmental benefits

Renaturalised river, wetlands, threatened saltmarsh vegetation reintroduced, flood (and erosion) mitigated

Staff capability was expanded through exposure to new economic assessment models and top-end research "We never talked about these concepts before this project, and now we are thinking about how we can apply the models to other projects".

¹ <http://riversymposium.com/wp-content/uploads/2015/10/Philip-Birtles.pdf>
<http://ageconsearch.umn.edu/bitstream/235637/2/Thomy%20ppt%20upload.pdf>



Case study 14

Greening the West

City West Water together with: Brimbank City Council, City of Melbourne, Friends of Lower Kororoit Creek, Hobsons Bay City Council, Port Phillip & Westernport Catchment Management Authority, Metropolitan Planning Authority, Hume City Council, LeadWest, Maribyrnong City Council, Melbourne Water, Parks Victoria, Regional Development Australia, Urban Development Institute of Australia, VicRoads, Western Water, Wyndham City Council, Yarraville on the Nose Community Group

This case study showcases

how collaboration and integrated planning deliver better value for communities

water businesses delivering more than just water and sewerage provision

Problem

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 deleterious effects of air pollution.

Solution

Urban greening has been recognised as a low-cost strategy that will bring high impact results – environmentally, economically and crucially, for the health and wellbeing of the residents who live there.

Following a think tank organised by City West Water in 2011, an alliance of the many 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, new opportunities through collaboration.

Through collaboration the following targets are set to be achieved:

25% increase in alternative water for green space by 2030

Double tree canopy cover in the west by 2050

Green space to be increased by 25% by 2030

Business case

Business cases are completed on a project-by-project basis. One example is the Stony Creek renaturalisation project, where 1.2km of an inaccessible concrete drain will be turned into a natural creek with community access and facilities (e.g. park, playground, bbq). The benefit to the community were estimated to be:

\$5 per visit from new and more frequent visits (\$140,000–\$620,000/year)

10% increase in avoided health costs from increased physical activity (\$75,000 per year within 1 km of creek)

1–8% increased property value within 500m of the creek (\$2.3–\$18.2M)

Key drivers

Poor community health

Manage low rainfall

Low quality open space

Strong organisational leadership

Fast growing suburb, the chance for change is now!

Low tree canopy coverage

Benefit/outcome

Very strong community benefits: More open green and active space, more shade. More attractive region, also for investors and businesses.

Staff capability to be expanded through: collaboration with new disciplines and stakeholders, business cases to be developed with new tools and seeking private investment partners.

Authorising environment to be expanded through wide-ranging collaboration across public and private sector stakeholders.



Case study 15

Fishermans Bend

Integrated planning for the community

South East Water

This case study showcases

how collaboration and integrated planning deliver better value for communities

how government can facilitate collaboration and integrated planning

Problem

Fishermans Bend is a brownfield development and one of the largest inner city developments in the Southern Hemisphere at 455 hectares. By 2050, Fishermans Bend will be home to approximately 80,000 people and support 60,000 workers. There is a strong imperative by state, government and other organisations to make this a first class, sustainable and liveable development. Water is pivotal to the design. Only by adopting an integrated water management approach can we reduce the reliance of this rapidly growing region on already stressed water and waste water systems.

However, there are numerous challenges to face, including limitations to sewer capacity, regular flooding, drainage issues and unstable/contaminated soils. As a former industrial area, there is limited existing public green open space or recreational areas, an issue further exacerbated in a high-density urban environment where there will be few private green spaces. This means not only a high cost to retrofit but also a number of technical challenges.

Solution

The numerous challenges faced in Fishermans Bend has been viewed as an ideal opportunity to shape a water sensitive precinct, a vision which has been progressively embedded into Victorian Government policies over a number of years. To achieve this goal, a structured approach was taken:

Engage early in the planning process embed WSUD into precinct plans, etc.

Develop strong stakeholder partnerships A stakeholder working group, including South East Water, Melbourne Water, the EPA, relevant State government departments and local councils was formed. They committed to working collaboratively, openly sharing information and ensuring clear allocation of responsibility and risk.

Understand the context understand how water cycle needs in a local context and custom solutions around this.

Holistic thinking what are the liveability, recreational, amenity and social outcomes that could be achieved and ensuring these are accounted for in options analysis.

To combat key issues of the development and create a sustainable masterplan an integrated water cycle approach was required. A number of potential solutions were put forward, with the preferred option on a whole of community needs basis being:

Stormwater storage to reduce flooding frequency

Rainwater capture and smart tanks for non-potable uses – irrigation, toilets, laundry.

Centralised sewer mining – local treatment plant and third pipe for non-potable use (to supplement reuse of rainwater which would not adequately supply the precinct)

Latest technologies for digital metering, pressure sewer systems and intelligent networks which overcome some of the development challenges.

Waste to energy is being explored utilising the solid portion of the mined sewage combined with municipal organic waste through anaerobic digestion to generate gas for electricity generation and centralised heating or cooling.

The preferred option will reduce the water footprint of Fishermans Bend by 45%. The option has the potential to initiate a paradigm change in the way water services are delivered to the heart of Melbourne.



Business case

The cost of the preferred option is higher than business as usual for the water utility and as such, collaborative financing options such as developer contributions or federal and/or state funding are being explored.

The Fishermans Bend Taskforce has been set up to further develop the South East Water business case based on the additional value the servicing strategy will provide for the community and to support Melbourne as the world's most liveable city.

Key drivers

More broadly, a key driver for undertaking a 'water sensitive' approach has been incrementally growing interest in integrated water management by State Government over the last 20 years. This has largely been driven by the longstanding challenge in Melbourne to reduce nutrient discharge into Port Phillip Bay in addition to the supply challenges faced during the Millennium drought. This is also supported by the vision of state government, council, authorities and developers for sustainable and resilient communities.

Government & utility drive to try new things and set an example.

Strong relationship between South East Water and key stakeholders and the Metropolitan Planning Authority in particular, which has built capacity and expertise over a number of years across various projects, thereby preparing them for this larger challenge.

Availability of new technology which has made certain solutions feasible.

Benefit/outcome

Water footprint reduced by 45%

Creation of a green, cool landscape (including urban forests, open spaces, street trees, green walls) which combats heat stress and is sustained through a drought proof supply.

Reduced urban flooding

Climate resilience

Amenity and social benefits.



Case study 16

The urban water cycle planning guide

Barwon Water

This case study showcases

how collaboration and integrated planning deliver better value for communities

Problem

The Geelong region is one of the fastest growing in Australia and experienced considerable water management challenges during the millennium drought. New urban landscapes are being planned and designed at a rapid rate. A key challenge for urban planners, developers and governments is how to design and build new urban landscapes which are more liveable for residents and more resilient to external pressures like climate change.

Whilst these stakeholders share an interest in adopting good practice integrating urban and water planning can be complex and difficult. Consequently, it is absent or lacking in the early planning stages of new developments, meaning opportunities are missed and/or inefficiencies arise.

This stems from fragmented management of the different aspects of the urban water cycle from a planning perspective and a lack of tools for integration. Whilst Barwon Water has a key role to play in providing water, sewerage and alternative water to these new landscapes, it recognised the need for greater cross agency collaboration to help ensure the water cycle is considered as early as possible in the design stages.

Solution

Recognising that these challenges presented opportunities for better integration of water and urban planning, Barwon Water led the creation of Victoria's first Integrated Water Cycle Management (IWCM) Network. Establishment under a signed MoU between the water corporation, CMA and Local Government, the network commits the agencies to work

towards a more integrated approach to urban and water planning. By signing the MoU, the organisations commit to playing a role in coordinating, raising awareness, building knowledge and confidence in and developing tools around IWCM.

A number of initiatives have now been delivered through the Network, including:

Colac IWCM Plan

A whole of city water cycle based master planning exercise where the key agencies in Colac worked through a strategic visioning and planning process to identify ways in which the urban water cycle can help the city achieve its broader community vision.

Urban Water Cycle Planning Guide

An online resource to help urban developers, consultants and planners embed the concept of IWCM into the design of new urban subdivisions, including built and natural infrastructure as a well as water servicing options.

IWCM plans for development precincts

The network has now developed several IWCM plans for more liveable design of urban developments in the region, including Fyansford and Spring Creek.

Atlas of alternative water opportunities

A detailed database describing all existing, planned and potential demands and supply nodes for alternative (non potable) water for use in all serviced areas across the region.

In the past five years the region has continued to push the boundaries of leading integrating water and urban planning; we have led the preparation of IWCM plans at various scales, (township, precinct and sub-precinct) and created an online guide to help consultants negotiate the integration process (www.urbanwaterplanner.com.au). Staff are taking on new roles as sub-

consultants to lead similar processes in other jurisdictions across the state.

Business case

Through practical collaboration, the Network has developed a genuine commitment to working together for better integration of urban and water planning. Having a shared vision of more liveable urban landscapes and a working network of practitioners has helped the group develop successful funding proposals and become involved in urban master planning early in the process. Funded projects, such as the Guide has further strengthened relationships within the group. The leverage of funding and the sharing of knowledge and capability through joint projects has reaped returns in better developments and smarter water management decisions.

Key drivers

Ultimately, the cornerstone of Barwon Water's approach has been to help the region achieve its broader goals for urban liveability. With a strategic outlook, extensive multi-disciplinary experience and strong regional relationships and networks, Barwon Water has been in a position to help facilitate the changes necessary. Ultimately, this collectively leads to the right solutions for the community.

Benefit/outcome

Facilitating IWCM implementation at a practical scale, thereby leading to enhanced liveability outcomes in new developments such as improved aesthetics, green open spaces, better accessibility, improved environmental outcomes.

Local resilience to climate changes via a more diverse portfolio and water efficiency community

Greater communication, coordination and capacity amongst key players



Case study 17

The Victorian Water Plan

More than supply and security

Department of Environment, Land, Water and Planning, Victoria (DELWP)

This case study showcases

How government can facilitate collaboration and integrated planning

Problem

Water policies, strategies and plans exist for many states, regions and cities. They are often developed by State Governments, with the relevant water business(es), to articulate a Government's position relating to water, and actions for its management over the long term. Many water plans only consider water supply and security for a region. This continues the siloed approach to urban water cycle management in that water businesses are only asked to consider and plan for their specific area of responsibility. It also reinforces the perception that water businesses are only providers of water supply and sewerage services, and have no consideration for other elements of the water cycle.

In these plans there is often very little, if any, recognition of the contribution water provides to broader outcomes such as prosperity, liveability, indigenous values and general health and wellbeing. It also means that there is not a strong driver for agencies to come together to plan for these broader outcomes, and this potentially results in lost opportunities.

Solution

Water for Victoria seeks to optimise community benefit through stakeholders collaborating and taking a more holistic approach to water cycle servicing.

Investment is continually made in managing the urban water cycle. An integrated water management approach to planning will improve value by using this investment to deliver multiple benefits. There will be increased effort at the planning stage to identify and explore opportunities to achieve this, with the benefits expected to significantly outweigh these additional upfront costs.

Business case

Population growth and climate change will present challenges to maintaining and improving the liveability of Victoria's cities and towns, for which water management is an important enabler. The traditional siloed approach to planning is a barrier to realising multiple benefits through multi-functional assets and collaboration.

Key drivers

The broader benefits from a Water Plan that encompasses more than just water supply security and sewerage provision are:

The recognition that outcomes such as liveability, health and resilience are the responsibility of more than one agency, and that water is a critical enabler

Better outcomes for the community through engagement to understand and deliver what the community values

Optimised value from investment, resulting from collaboration in the development of servicing solutions and leveraging the skills and assets from different agencies

Benefit/outcome

Water for Victoria seeks to optimise community benefit through stakeholders collaborating and taking a more holistic approach to water cycle servicing. Investment is continually made in managing the urban water cycle. An integrated water management approach to planning will improve value by using this investment to deliver multiple benefits. There will be increased effort at the planning stage to identify and explore opportunities to achieve this, with the benefits expected to significantly outweigh these additional upfront costs.

DELWP have developed a framework for developing integrated water management plans to support this outcome.



Case study 18

Water and economic development

Providing broader benefits through the South Australia Strategic Plan

SA Water

This case study showcases

how government can facilitate collaboration and integrated planning

Problem

In response to a number of state-wide financial and social pressures, there is a strong imperative from the South Australian Government to bolster economic development. One priority for the Government is positioning SA as a 'renowned producer of premium food and water, from its clean water, clean air and clean soil'. As a State-owned corporation, SA Water has the capacity to foster and facilitate projects which have broader benefits to the community, for example through providing a secure recycled water supply to the food and wine industry. Previously, there has been a limited ability to pursue or finance such projects as the NPV did not consider the benefits that would be realised outside of SA Water.

Solution

The development and implementation of the South Australian Strategic Plan has enabled an overarching blueprint for future planning across all government departments. KPIs and targets ensure previously siloed departments or organisations can move toward the same goal. For SA Water, this means it is able

to consider projects which may provide broader value to the State. Projects are financed either directly from the State and/or Federal Governments or via reduced dividends to its owners; hence these projects do not impact the customer base through higher water bills. One such project is the proposed Northern Adelaide Irrigation Scheme (NAIS), which will deliver an additional 20 GL of recycled water to support high value food production for export markets in the Northern Adelaide Plains. This will contribute to an estimated \$350 million of horticulture production annually and create over 3,600 jobs for the region.

Business case

The initial estimates suggest that there is around \$170 million required for the recycled water infrastructure, which does not include the additional on farm investment for glass houses, irrigation systems etc. At present the funding model for this project has not been finalised, however there is discussion with private investors and the State and Federal Governments regarding how the recycled water infrastructure will be financed. Other aspects that were considered in the development of the business case, such as SA Water's commitment to the EPA to reduce nutrient loads to the marine environment.

Key drivers

The key driver for this project was the SA Government's desire to boost employment and stimulate revenue for the State. The SA Strategic Plan and its State ownership provide SA Water with the mechanism to deliver broader benefits to the State.

As mentioned, a secondary driver is the reduction of effluent discharges and associated nutrient loads to the marine environment.

Benefit/outcome

The main benefits that have been influenced by the State Strategic Plan include the ability to deliver the NAIS project, as described above. As an example, this project and other smaller supportive projects in this area will result in:

Jobs/economic development for SA (3,600 jobs)

Food production

Capacity building in SA Water – training staff to consider broader benefits and solutions

Reduce nutrient loads to the gulf



Case study 19

A move to buffertopia Strategic resource precincts

Water Corporation

This case study showcases

How collaboration and integrated planning deliver better value for communities

How Government can facilitate collaboration and integrated planning

Problem

As cities and towns grow there is often pressure to locate residential areas close to wastewater treatment plants (WWTPs). This can expose residents to nuisance causing odour, leading to complaints and pressure for the utility to either upgrade infrastructure or relocate the treatment plant at significant cost. Water Corporation operates over 100 treatment plants across Western Australia. Odour buffers have been identified for most of these, however, many are not secured and are at constant risk of urban encroachment. On average only 20 percent of land in the identified odour buffers is owned by the Water Corporation and so there is a heavy reliance on seeking to influence State and local government land use planning to prevent the intrusion of incompatible land uses into the defined buffer. While the Water Corporation has had some success in achieving this, around 25 percent of all WWTPs and 40 percent of large WWTPs are considered to be at risk of urban encroachment.

Solution

'Buffertopia' – the Strategic Resource Precincts² concept was conceived and developed in consultation with internal and external stakeholders, including planning authorities.

The concept recognises that WWTPs are increasingly being seen as secure sources of recycled water and other resources essential for helping to ensure the liveability, climate resilience and sustainability of cities and towns. At the same time it proactively communicates opportunities for synergistic and beneficial land uses in the buffer that either use outputs from the plant (e.g. recycled water, nutrients, sludge, biogas) or provide inputs (e.g. energy, knowledge) which benefit the WWTP and urban communities. For example parklands or intensive horticulture could be high users of WWTP outputs such as recycled water, nutrients or biosolids, or there may be benefit in co-locating other green waste facilities or research facilities for sharing of knowledge or technology. At a time of increasing water stress and urban heating, there is a growing community demand for green infrastructure such as playing fields, artificial wetlands and urban forests, which are supported by a secure water supply.

The establishment of Strategic Resource Precincts around WWTPs has been recognised in the Western Australian Planning Commission's State Planning Strategy 2050 and Water Corporation is now progressively working together with local governments and other key stakeholders to ensure it is included in a range of other strategic and statutory plans and policies. Going forward, Water Corporation has an important facilitation role to play as they have the expertise to communicate and advise on the most appropriate beneficial land uses.

Business case

A lack of appropriate buffers or land use planning is estimated to have cost the Water Corporation around \$800 million in upgrades or relocations in the period 1997 to 2012. While each site will need to go through its own business case and may involve financial contributions from Water Corporation or other stakeholders, the main driver is avoided cost in addition to added community benefit.

Key drivers

Having secure odour buffers resulting in less complaints, avoided infrastructure upgrade or relocation costs as well as reputational benefits has largely driven this initiative. The concept of Strategic Resource Precincts has been used in Western Australia for other industries such as agriculture and basic raw materials and minerals which effectively set a precedent for Water Corporation to pursue this initiative.

Benefit/outcome

Long term asset protection

Efficient use of land, water and other resources

Communities which are more liveable, climate resilient and sustainable through provision of water secure land uses – e.g. parks, gardens, conservation reserves, horticulture etc.

² <http://www.watercorporation.com.au/home/builders-and-developers/land-planning/strategic-resource-precincts>



Case study 20

Making the Parramatta River swimmable again

Parramatta River Catchment Group/Sydney Water

This case study showcases

How collaboration and integrated planning deliver better value for communities

Customer and community working with water businesses to define broader value

Problem

Up until the 1950s, most of the Parramatta River was swimmable and the river was the focal point of many social activities. Since then, the river's condition has deteriorated and is currently in an impaired state, with only few locations where people can still swim. With western Sydney facing strong population growth, there is a growing need for active public spaces where the community can swim and relax. At the same time, governance surrounding the Parramatta River is complex, with numerous organisations having responsibility for different aspects of the river.

Solution

The Parramatta River Catchment Group (PRCG) was formed in 2008 and comprises a group of councils, State government agencies and community groups, whose aim is to work together to improve the health of the Parramatta River catchment. Through regional collaboration, the PRCG seeks to ensure coordination of effort, optimal use of resources and greater impact on governmental policies and decisions affecting the catchment than could be achieved through each member working separately.

In 2014 the PRCG launched the Our Living River initiative, with the mission to make the Parramatta River swimmable again by 2025. To achieve this mission, the PRCG are

developing a Masterplan to map the necessary steps and milestones required to meet our objectives. The PRCG has taken a strong outcomes based approach to this complex task, driven by community needs. Through initial community consultation, it became apparent that being a 'swimmable' river meant more than just swimming, but also a desire to enjoy the social, amenity and biodiversity benefits of the river. The Masterplan therefore encompasses the many dimensions of making the river swimmable, including water quality, ecological health, swimming site activation and waterway governance. It is being heavily informed by community preferences through an extensive community research piece as well as popular campaigns to involve the community in the decision making process. For example, to inform the locations of potential swimming spots, the community were asked to vote for where they would want to swim on the river.

To further strengthen the links between ecological health and swimming in community minds. The PRCG undertook a community engagement campaign which centred on inviting the community to vote for their favourite 'flagship' or mascot species for the river. With approximately 5,000 votes received, five mascots were chosen for different river qualities, being the Southern Myotis (fishing bat), Striped Marsh Frog (riparian), Eastern Long Necked Turtle (freshwater), Bar Tailed Godwit (estuarine) and the Powerful Owl (terrestrial). These have now become the focus of the ecological health component of the Masterplan.

Focusing on the preservation of these species will have natural flow on effects to the improvement of the river at large.

Through these mascots, the PRCG aim to educate the community on how they contribute to a 'living' river system and how we can all benefit from these broader ecosystem services. It will also inform the plan for the river going forward by understanding what pressure points these mascot species have in the river and how they link back to the vision of making the river swimmable once more.

Business case

Resourcing for the development of the Parramatta River Masterplan has come through various forms of cash and in-kind funding of the PRCG. Funding for implementation will be further explored through a detailed economic analysis.

Key drivers

It was recognised early that strong community engagement would be required, given the population in the catchment and complexity of the issue. The diversity in participating organisations in the PRCG means that this was a strong vehicle to move the vision forward.

For Sydney Water, in addition to fulfilling wastewater/stormwater responsibilities, involvement strongly aligns to corporate strategy goals of playing a proactive and leadership role in the broader conversation of urban environments and considering innovative solutions.

Benefit/outcome

Amenity and recreational benefits

Ecological benefits

Relationship building with key stakeholders through the PRCG

Reputational benefits.



OUR SPACE. YOUR PLACE.

Use Melbourne Water land
to benefit your community

Case study 21

Our Space, Your Place

Melbourne Water

This case study showcases

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

There is growing evidence of the benefits of well-planned green spaces on the physical and mental wellbeing of the community. As Melbourne grows it is becoming more important to provide opportunities for exercise, such as cycling and walking and community interactions and access to open outdoor areas.

Melbourne Water is the custodian of 33,000 hectares of land across greater Melbourne, the second largest owner of land in Melbourne behind the Crown. Significant tracts of this land remain underutilised, and are often managed from a community safety perspective by making the land inaccessible to the public. There is great potential for Melbourne Water to provide more value to community for this land.

Solution

To encourage the use of land for community projects, Melbourne Water created a map based web application, 'Our Space. Your Place.' which makes information on Melbourne Water's land

publicly available and streamlines the process of finding land and expressing interest in using it for community benefit. Community groups and individuals can use the application to search for an appropriate space for their community use concept, access information on potential funding sources, and send through an expression of interest. Community members are encouraged to consider a wide range of activities on the land, such as parks, shared pathways, community gardens, events, landscaping and vegetation, murals and public art. Since launching, over 30 requests have been made through Our Space. Your Place.

Hope City Mission, who provide a significant quantity of food each week to families in need, conceived a 'Garden for Hope' where fresh local produce could be harvested and supplied to clients direct from the garden. Short of space for this project on their own land, Hope City Mission looked to the open space behind their premises where Melbourne Water maintained an easement with significant amounts of open space along its length. Hope City Mission approached Melbourne Water with a proposal to construct a community garden on their land. The beds were built above the ground in a 'no dig' solution to protecting the Melbourne Water assets.

Business case

Facilitation of the *Our Space. Your Place.* project has been cost effective, and includes some in-kind time and the development and maintenance of a web based platform. In addition to providing the land, Melbourne Water support applications through to implementation for example helping to identify funding opportunities.

Key drivers

Key to the success of *Our Space. Your Place.* has been a cultural shift within the organisation largely driven by the project champion. This included realising the potential benefits that could come from releasing the land, unlocking data previously only used internally and building capacity to engage and service the community in new ways.

Benefit/outcome

Assets are improved to directly meet community needs – with a number of potential benefits such as improved amenity, biodiversity and improved mental and physical wellbeing of the community.

Improve transparency, customer service and reputation of Melbourne Water



Case study 22

Using engagement to find a solution

Engagement of remote Indigenous communities in the Northern Territory

Power and Water Corporation

This case study showcases

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

Many remote indigenous communities in the Northern Territory rely on stressed groundwater or freshwater sources and are exposed to critical water shortages.

Communication on the importance of water conservation with these indigenous communities has been difficult. Residents of the townships retain ties to traditional culture with English as a secondary language. They are not well educated on the systems and processes of water or other utility services, i.e. where it comes from, where it goes and the governance that surrounds it. Hence they do not often make the connection between water that comes out of the tap and local issues of water stress. As they often live in public housing, there is no price signal to use less water. The communities are plagued with other social pressures such as high levels of unemployment and water efficiency is not high on the agenda for most. Power and Water in the Northern Territory hence face a strong cultural, language and distance divide in getting their water efficiency messaging across.

Solution

Through consultation with the local indigenous communities, Power and Water began to understand that effective

engagement would need to come from those with the same cultural and language backgrounds, and with understanding of community needs and values.

In 2012, Power and Water employed, mentored and trained four local indigenous Water Conservation Ambassadors to educate the remote community of Galiwin'ku on positive water behaviours and water efficiency. Power and Water worked with local organisations, Community Development Employment Program providers and Community Enterprise Australia to assist in ensuring the right community ambassadors were chosen and provide culturally appropriate training and ongoing mentoring. The program resulted in significant water efficiency and education gains.

Following the success of this program, in 2013, Power and Water took part in the Low Income Energy Efficiency Program (LIEEP), a Federal Government funded project which in the Northern Territory was trialled in six remote communities, including Galiwin'ku. The LIEEP program built upon the community engagement process used in Galiwin'ku, and also took the opportunity to leverage this funding in energy efficiency to include some water efficiency education/ services. The program involved recruiting and training 80 local indigenous community members in local languages, and preparing communications materials that spoke to the communities. Part of the training also involved more general HR activities such as experience in workplaces, with induction, timesheets, etc.

Power and Water are now leading the way to explore opportunities with other government agencies who may have the need for similar indigenous community engagement programs to pool resources and implement joint training or employment programs.

Business case

Due to the broader community benefits of this program, there has been Government funding and support to run this program.

Key drivers

Strong message from the indigenous community that Power and Water needed to engage with them in a culturally appropriate way to achieve the outcome the desired.

Drive from Power and Water to have a respectful and open dialogue with their customers

Benefit/outcome

Water efficiency outcomes –savings of up to 8% observed after household water education delivery

Upskilling and empowering remote indigenous community

Employment opportunities in a region where the unemployment rate is high.

Better relationship and understanding of the local community

Sustainable management of water.



Case study 23

Understanding customer views on stormwater

Customer value and willingness to pay for stormwater services

Sydney Water

This case study showcases

customer and community working with water businesses to define broader value

Problem

Population growth, urban development and increasing run-off continue to place stress on local waterways. Effectively managing these pressures will require Sydney Water to increase future investment in stormwater. At the same time, responsibility over stormwater is complex across many cities in Australia. In Sydney, Sydney Water manages trunk main and some smaller stormwater assets, while councils manage most of the smaller (and some larger) stormwater assets. Funding for maintaining this infrastructure is through a mix of Sydney Water bills, council rates and development contributions.

Unsurprisingly, there is some confusion amongst customers on the role of stormwater in the urban water cycle, and where the responsibility lies.

Solution

Sydney Water engaged the Institute for Public Policy and Governance at the University of Technology Sydney (UTS) to conduct social research to better understand customer views on stormwater. Sydney Water wanted to understand the level of customer knowledge and their view of stormwater and its infrastructure: what customers value, their preferences and willingness to pay for improved or different outcomes from stormwater management.

Customers were engaged through focus groups, an online survey and a deliberative panel. Participants were selected to represent a range of demographics and locations. Key findings included:

Most customers know very little about stormwater and how it relates to the urban water cycle.

There was confusion as to who looks after stormwater infrastructure, who pays for it and how much they pay.

However, once educated, they valued the range of outcomes stormwater infrastructure provides and believed they pay a reasonable amount or not enough for it.

Reuse of stormwater to reduce demand on drinking water, improving water quality, reducing flood impacts and reducing litter/pollutants were all considered important and primary outcomes/infrastructure.

Low levels of customer knowledge and experience of newer approaches to managing stormwater, such as water sensitive urban design, made it somewhat challenging for customers to understand the value they get from these approaches and whether they are willing to pay for it. However, once explained, customers felt strongly that they wanted such outcomes and were willing to pay for them.

In the deliberative forum, a consistent driver for water sensitive city outcomes from stormwater infrastructure was the desire for better city outcomes (including equity) for the next generation.

Following education, participants generally felt everyone across Sydney should pay the same for stormwater infrastructure, regardless of where they live. However, if delivering a more equitable charging system means

an increase in the amount paid by some customers, then customers wanted this re-invested in the local area where they live.

Broadly, customers saw stormwater as essential infrastructure which:

Should be paid equally by all users similar to health, education and other vital services and infrastructure

Contributes to the future liveability of Sydney in a range of ways including public health and safety and water security

Operates as a network and should be managed across areas in a streamlined and transparent manner

Delivers outcomes that can be arranged into a clear hierarchy of needs from 1) public health and safety, 2) water security and environmental protection, and 3) amenity.

Business case

This study helps to understand willingness to pay for stormwater infrastructure and where to prioritise investment based on the range of values held by customers.

Key drivers

SW aspires to be a leading utility where customers are at the centre of decision-making.

Benefit/outcome

Improved outcomes in stormwater management

Understanding what customers value about the services Sydney Water provides

Products and services provided by Sydney water are aligned to the range of values held by customers