

WATER IS GOOD

Annual
Statement **2010**



Government
of South Australia

Water for Good Annual Statement 2010

Water is our most valuable resource.
It's fundamental to our health, our way of life,
our economy and our environment.

Tracking the implementation of
Water for Good is vital to its success.



Paul Caica

Minister for River Murray
Minister for Water

The prolonged dry period of the past few years impacted on our entire State and also saw the rapid deterioration of the South Australian stretches of the River Murray and our precious Lower Lakes. It was recognised that we needed to plan for a future of climate uncertainty. The issue of water security became one of the most critical issues facing the State.

That is why the Government commissioned the **Water for Good** Plan. We needed a robust and responsible blueprint to take us to a future where, even in the driest years, our community could feel confident that there would always be enough water.

Since the release of **Water for Good** in June 2009, significant efforts by the community, industry and government have meant that we are on track to meet our water demand and supply targets and, in some cases, meet targets earlier than envisaged.

The new Department for Water is now taking a lead role in the management of water resources in South Australia and the implementation of the Plan. The Department's work will be supported by the new Goyder Institute for Water Research, which will enhance our capacity to develop science-based policy solutions to underpin sustainable development.

The Adelaide Desalination Plant will soon begin producing drinking water for Greater Adelaide, providing a secure non rainfall-dependent water source for a future of climate change and population growth. A number of new stormwater and wastewater projects are also being developed across the State to provide alternative, fit-for-purpose sources of water for our communities, and we are tackling reform of the water industry.

South Australia is not alone in facing major water issues but, because we are at the lower end of the Murray-Darling system, we have seen all too clearly the effects of not addressing issues such as over-allocation. The Government succeeded in getting the restoration of the River Murray onto the national agenda, and we are working as closely as possible with the Murray-Darling Basin Authority to ensure that a workable, fair and realistic whole-of-basin plan comes out of the drafting and consultation phase we are currently going through.

Our State must lead by example and insure against a future of climate uncertainty. That's what **Water for Good** is all about. In terms of implementing the Plan, we have come a long way in a relatively short time, but in the context of a 40-year strategy, it is very early days. I look forward to being able to report even further progress in the next **Water for Good** Annual Statement.



Robyn McLeod

Commissioner for Water Security

The actions in **Water for Good** have been in place for more than 12 months and congratulations are in order for the progress we've achieved.

The people of South Australia have responded responsibly to reduced water availability and restrictions on our drinking water supplies. The three tiers of government have worked together and independently on the issues we face across the State. State Government agencies, particularly SA Water and the new Department for Water, have provided coordinated and consistent commitment. And industry has pulled its weight, too. As a result, we can claim gratifying progress on many of the 94 actions in the **Water for Good** Plan.

In 2010, SA faces a much more secure water future. Our water supplies are becoming increasingly diverse – through progress on desalination, and the reuse and recycling of stormwater and wastewater. We are working on legislative reform and two new laws will soon be presented to Parliament. People have embraced the need to change behaviours and become more water wise – at work, in schools, at home and even on holidays. It was pleasing to see that, despite restrictions being eased back in November 2009 and May 2010, water use in Greater Adelaide continued to trend down.

Of course, a return to average or better than average rainfall has added to this security, bringing relief to our waterways and filling our storages. But as we all know only too well; one good season cannot solve the problems that have been building, arguably, for decades. We still face the task of returning the great River Murray to sustainable levels, and further developing our pricing, regulatory and market regimes.

The adaptive planning framework we have in place for managing water security means we can be responsive and make timely, appropriate decisions. We know how we can – and must – deal with a changing climate and inevitable variations in rainfall into the future.

While I thank South Australians for their patience and forbearance during the tough times, the vital message I must reinforce is that everyone – farmers, business people, industry leaders and families – must continue to use water wisely. By virtue of where we live and the variability of our climate, we will always have to do this.

I also urge governments at all levels to reinforce this message through education and example. Water security is a shared problem; it is also a shared opportunity. And I believe, in the long term, we will all share in the success of **Water for Good**.

Contents

Introduction	4
Progress highlights	5
Adaptability, monitoring and evaluation	5
Desalination	6
Stormwater recycling	7
Wastewater recycling	8
Using and saving water	9
Rain, rivers, reservoirs and aquifers	10
Planning	12
Fostering innovation and efficiency	13
Pricing and market instruments	13
Legislative and regulatory changes	13
Assessment of Greater Adelaide's Water Security	14
2009-2010 supply and demand	14
2009-2010 actual and projected available supply	16
Review of assumptions	18
Supply drivers	18
- Mount Lofty Ranges supply	
- River Murray supply	
- Desalinated water supply	
- Alternative supplies	
- Climate change	
Demand drivers	18
- Demand	
- Climate change	
- Population growth	
- Demand management measures	
The Year Ahead	19
The Murray-Darling Basin Plan	19
Water Wise Measures	19
New water-pricing regime	20
Legislative reform	20
Supply from the Adelaide Desalination Plant	20
Further activity planned for 2010-11	20

List of Figures

Figure 1 Annual inflow to the Mount Lofty Ranges reservoirs	14
Figure 2 River Murray System inflows 1891-2010 (Including Inflows to Menindee and Excluding Snowy Releases)	15
Figure 3 River Murray System inflows (Excluding Menindee Inflows and Snowy Releases)	15
Figure 4 Mains water consumption for Greater Adelaide	16
Figure 5 Greater Adelaide 09-10 available supply compared to projections	17
Figure 6 Greater Adelaide projected water supply mix	17

Water Volumes

Throughout this document it has been necessary to refer to water volumes using various units of measurement, depending on the context. A summary of these is given below:

How much water is that?

Kilolitre (kL)

One kilolitre is 1000 litres. Kilolitres are the units most commonly used in referring to household water use, with the average Adelaide household using between 200-250 kL each year when we are not on water restrictions.

Megalitre (ML)

One megalitre is 1000 kL or one million litres and is roughly the volume of most 50 metre public swimming pools. The Torrens Lake between Hackney Road and the Torrens Lake weir holds about 600 ML.

Gigalitre (GL)

One gigalitre is 1000 ML or 1 billion litres and represents a volume of water one square kilometre by one metre deep. When full, the Hope Valley reservoir holds about 2.8 GL and the Happy Valley reservoir holds 11.6 GL.

Introduction

The **Water for Good** Plan, launched in June 2009, is a blueprint for South Australia's water security to 2050. It identifies 94 key actions to help diversify our water sources, improve the way we allocate and use water, and improve and modernise our water industry. Collectively, these actions will ensure the State has a secure and reliable supply of water to support the growth of our population and economy into the future, while preserving both our quality of life and the environment.

Through the implementation of the many wide-ranging actions in **Water for Good**, South Australia will lead the country in water supply innovation and be recognised as the 'water sensitive State'.

Tracking the implementation of **Water for Good**, and constantly monitoring demand and supply, are essential to achieving our water security goals. To this end, the Commissioner for Water Security reports quarterly to the Water Security Council and the Department of the Premier and Cabinet. This document is the Commissioner's first annual review, prepared for the Minister for Water, against the following criteria:

- assess progress and identify any risks or issues
- evaluate and confirm water security standards for the next review period
- provide demand and supply status information about the Greater Adelaide region
- identify and analyse the impacts of any emerging issues.

All of **Water for Good's** actions are being implemented with significant collaborative effort. Considerable progress has been achieved, in particular, in the areas of water supply diversification and reform of the urban water sector. The new Department for Water is the lead agency for the management of water resources in South Australia and it has responsibility for driving more than half of the **Water for Good** actions.

While work on most actions is on schedule, it will continue to be a challenge to meet all targets outlined in the Plan.

Water for Good was prepared during a period when unprecedented dry weather patterns were being experienced across the State. The State Government had no option but to make tough decisions to secure water supplies and to protect the River Murray and Lower Lakes. Investment in massive engineering works was required, pumps along the river were lowered to depths not previously contemplated, wetlands were disconnected and new pipelines had to be built. Water restrictions were also in place to reduce the draw on mains water and relieve the burden on the River Murray.

Against this background, the Government sought a plan to ensure that, even in long or intense dry periods, the community could be confident that its water supplies were safe, secure and reliable. For this reason, **Water for Good** takes the most prudent approach to its projections for Greater Adelaide out to 2050, and provides both 'moderate dry-year' and 'extreme dry-year' scenarios.

The assessment of demand and supply for Greater Adelaide in 2009-10 confirmed that no major assumptions have changed and no new issues have arisen to warrant a review of the projections, or the actions, outlined in the Plan.

Fortunately, the past year's rainfall was well above those experienced for several years. Inflows to the River Murray system have improved, interstate river-related storages have been boosted and our own local reservoirs are at their highest levels in several years.

While the region's water supply situation is currently much improved, the relief we have experienced is no basis on which to change tack. The long-term over-allocation of Murray-Darling Basin water, climate change and population growth remain constant challenges for the driest State in the driest continent. We must continue to diversify our water supplies and acknowledge that the entire community will always need to use water wisely.



Progress Highlights

A little more than a year after the release of **Water for Good**, South Australia is on track to achieve the Plan's long-term goals and targets. This section of the 2010 Annual Statement outlines progress in key areas. A full list of the 94 actions – presented as a 'Report Card' in table format – is provided as a supplement to this Statement.

Adaptability, monitoring and evaluation

The Commissioner for Water Security monitors the progress of all actions contained in **Water for Good** and reports quarterly to the Water Security Council. The Council comprises the Minister for Water, the Minister for Agriculture, Food and Fisheries, and executives from key government departments, SA Water and the Chair of the Goyder Institute. Once the quarterly reports are endorsed by the Council, they are referred to the Department of the Premier and Cabinet. The Commissioner also oversees the annual review of the Plan.

An adaptive management framework is being used to ensure that timely and appropriate water security decisions can be made. Essentially this means that all decisions are based on constant monitoring and evaluation, and that the management process is adaptable to change and learnings. The following key factors form the basis of this approach:

- A set of water security standards
- State of the resource
- Demand pressures
- Governance and management
- Options and assessment process
- Measuring and monitoring.

Integral to this management framework are water security standards, which define the risk points that would threaten water supply and necessitate decisions to increase supply, reduce demand, or both. These standards, established in **Water for Good** and currently being refined by the Department for Water, are based on the following:

- system water quality
- capacity of the supply system
- water source – including diversity, reliability and security
- consumer efficiency
- demand factors – population and economic growth
- climate change scenarios
- environmental requirements
- cost effectiveness
- standard of service
- water restrictions – including timing, frequency, severity and duration.

As an example of adaptive management in action, Greater Adelaide's water supply situation has been regularly reviewed and, as a result, restrictions for SA Water customers are due to be lifted from the beginning of summer and replaced with Water Wise Measures.



Department for Water technical officer Barry Porter on a River Murray monitoring pontoon near Berri.

Desalination

Desalination is one of the key elements of the South Australian Government's strategy to provide a diverse and secure water supply. The Adelaide Desalination Plant will provide a secure, non rainfall-dependent source of drinking water for the Greater Adelaide region. The plant is almost complete and is due to start producing water in April 2011.

A transfer pipeline system will then take water from the plant at Port Stanvac to the Happy Valley Filtration Plant. Desalinated water will be pumped to Happy Valley, where it will be combined with high-quality filtered water before entering the existing supply network. Interconnection pipelines between Adelaide's southern and northern water supply systems are currently being designed and a comprehensive community consultation process is under way.

SA Water, together with other State Government agencies, is developing a statewide desalination policy to guide future desalination plant proposals. It is also continuing to investigate water supply/augmentation options for the Eyre Peninsula and the township of Hawker in the Flinders Ranges.

Adelaide Desalination Plant to shore up supply

The \$1.83 billion Adelaide Desalination Plant, at Port Stanvac on Gulf St Vincent, is one of the most significant construction and engineering projects ever undertaken in metropolitan Adelaide.

Powered by renewable energy and using reverse osmosis technology, the plant will ultimately deliver up to 300 ML of drinking water a day.

The project is being undertaken by multinational consortium AdelaideAqua, which has been contracted to design, build, operate and maintain the plant for 20 years, under the direction of SA Water.

Work began in July 2009 and the first drop of desalinated drinking water is due in April 2011. By the end of August 2011, the plant will be producing the equivalent of 50 GL a year and it will reach capacity – 100 GL a year – by the end of by the end of December 2012.

A vital part of the Adelaide Desalination Project is the pipeline to transfer desalinated water to the existing supply network, via the Happy Valley Filtration Plant. Built by the McConnell Dowell and Built Environs Joint Venture, the pipeline, along Lonsdale Road, has been completed, and testing and commissioning is under way.

Construction of the plant is providing substantial economic benefits to the southern Adelaide region and the broader metropolitan area, creating hundreds of jobs.



Stormwater recycling

Stormwater harvesting and reuse is an important means of reducing the draw on drinking water supplies. When **Water for Good** was released in June 2009, South Australia led the nation in stormwater recycling, and this continues to be the case. Since then, investment in stormwater recycling has been increasing rapidly.

Greater Adelaide is on track to exceed stormwater harvesting targets of 20 GL/a by 2013

The State continues to invest strongly in stormwater projects that are either up and running, under construction or being scoped. In collaboration with local government, it has been successful in securing Commonwealth funding for nine stormwater projects. This means Greater Adelaide will now exceed stormwater harvesting targets of 20 GL/a by 2013.

The nine projects are:

- Waterproofing the South Stage Two – City of Onkaparinga
- Waterproofing the West Stage One – City of Charles Sturt
- Water for the Future – City of Playford
- Unity Park Biofiltration – City of Salisbury
- Adelaide Botanic Gardens – Department of Environment and Natural Resources
- Adelaide Airport Scheme – SA Water
- Barker Inlet Scheme – SA Water
- Unley Scheme – City of Unley
- Oaklands Park Wetland Project – City of Marion.

In June 2010, funding for further stormwater and wastewater projects throughout the State was announced by the Commonwealth. These projects will harvest a further 3 GL a year.

The Department for Water is developing a strategy to achieve the long-term goal of harvesting 60 GL/a in Greater Adelaide by 2050. It is being assisted by a Stormwater Taskforce, which includes representatives from the Local Government Association, the Department for Water, SA Water, the Natural Resources Management boards, the Goyder Institute and the Stormwater Management Authority. The strategy will be a first step towards developing a masterplan for Greater Adelaide.

During the year, the State Government and the Local Government Association worked together to review the governance of the Stormwater Management Authority. An independent consultant was engaged to assist, a report was completed, and recommendations were released on 30 September 2010, for targeted consultation. The next step involves considering feedback received from consultation, and a subsequent review of the 2006 State and Local Government Stormwater Management Agreement. The Stormwater Taskforce will also inform this process, by assisting with the development of the stormwater strategy.



The Adelaide Desalination Plant, being constructed at Port Stanvac, is due to start producing water in 2011.

Wastewater recycling

South Australia leads the nation in recycling wastewater. More than 31 per cent of the wastewater from SA Water treatment plants is reused each year for irrigation, toilet flushing and the watering of parks and gardens. This compares with the national capital city average of 13 per cent. A key target of **Water for Good** is to recycle 45 per cent of wastewater from urban areas across the State by 2013, and this is on track.

- Recycled water is now flowing to the Adelaide Park Lands following the completion in January 2010 of the Commonwealth and State Government-funded \$76.25 million **Glenelg to Adelaide Park Lands Recycled Water Project**. The 32-kilometre network is providing recycled water from the Glenelg Wastewater Treatment Plant for the City of Adelaide's parks and city gardens.
- The \$62.6 million **Southern Urban Reuse Project** is being jointly funded by the South Australian and Commonwealth Governments. It forms one element of the *Water Proofing the South* strategy being led by the City of Onkaparinga, in partnership with SA Water.

Each year 1.6 billion litres of treated wastewater will be transferred from the Christies Beach Wastewater Treatment Plant to the Aldinga Wastewater Treatment Plant, where it will be stored. The wastewater will then be further treated before being provided to up to 8000 new homes in the south (Seaford Meadows in the first instance) for use in dual reticulation systems. This is similar to a project at Mawson Lakes, where treated wastewater is used for domestic purposes including toilet flushing and garden watering.

Pipelines from Christies Beach to Aldinga and from Aldinga to Seaford have been laid (completed in October 2009). Work is now focused on completing the storage basin and constructing the new water polishing and disinfection plant. It is anticipated that treated wastewater will start flowing into the Seaford Meadows dual reticulation system by the end of 2010.

- The reuse of water from regional and outer metropolitan community wastewater management systems is increasing significantly. It is expected that more than 8 GL of recycled water will be made available for regional areas under the \$200 million **Statewide Wastewater Recycling Project**. Local governments are providing \$180 million of this funding and the Commonwealth Government is contributing \$20 million.

Across the State, up to 63 existing community wastewater management systems are being upgraded to enable treated wastewater to be used – instead of potable and groundwater resources

- to irrigate public reserves, school ovals and for other appropriate purposes. The project, due for completion in December 2010, is also:
- addressing groundwater and surface water contamination and other environmental impacts of ageing wastewater management systems
- improving the environmental, operational and financial sustainability of these systems.

Early in 2011, the Department of Planning and Local Government will survey all participating councils to ascertain the amount of wastewater they are reusing from the new schemes. Ongoing monitoring will track progress towards achieving the **Water for Good** target of expanding recycling (council-operated) in regional areas to 12 GL/a by 2050.

- Measures will be developed to further encourage the establishment of decentralised wastewater recycling schemes in new developments to allow local treatment and reuse of wastewater from 2011.
- Another significant initiative will be the development of a master plan for managing wastewater in Adelaide from 2012.



A 32-kilometre network of recycled water pipes is providing recycled water from the Glenelg Wastewater Treatment Plant to the city's parks and gardens.



Adelaide Park Lands go green

Recycled water is helping to green up Adelaide's iconic park lands following the early completion of the \$76.25 million Glenelg to Adelaide Park Lands Recycled Water Project.

Under the Commonwealth and State Government-funded initiative, the 32-kilometre network is providing recycled water from the Glenelg Wastewater Treatment Plant to the city's parks and gardens – preventing it from being discharged into Gulf St Vincent and reinforcing Adelaide's position as a green city and a leader in wastewater recycling.

Construction began in September 2008 and the first water was delivered on 11 January 2010 – four months ahead of schedule. Work included the construction of a new recycled water treatment facility at Glenelg, an eight-kilometre trunk main from Glenelg to the city, and a 24-kilometre pipe network around the park lands.

The project has the capacity to provide up to 5.5 GL of high quality recycled water each year. In addition to supplying existing customers – local councils, businesses, schools and government departments – up to 1.3 GL will be available for the park lands, thus reducing the City of Adelaide's dependence on other water sources. Infrastructure has also been provided for new customers along the pipeline route.

Using and saving water

South Australians are continuing to demonstrate a strong willingness to improve their water use efficiency to reduce the pressure on existing supplies. For example, water consumption continued to decline in areas supplied by SA Water despite the easing of water restrictions.

Increasing inflows to the River Murray, combined with good storage levels and progress on the Adelaide Desalination Plant, resulted in the State Government announcing the lifting of Level 3 water restrictions from 30 November 2010. New Water Wise Measures, in effect the following day, instead guide consumers on commonsense practices for using mains water and give them greater flexibility in how they use it. There will no longer be set watering times for watering by hand (through a hand-held hose fitted with a trigger nozzle, from a watering can or bucket) or through drip irrigation systems. Householders will again be able to use sprinklers to water gardens, after 5pm and before 10am on any day. Water consumption will continue to be monitored to ensure responsible use.

The new measures will also apply to SA Water customers in Whyalla and Port Pirie, and will replace Permanent Water Conservation Measures in the South East and Kangaroo Island. Eyre Peninsula customers (with the exception of Elliston) will remain on Level 3 enhanced water restrictions as monitoring of the region's groundwater basins continues.

Since the introduction of the South Australian Government's **H₂OME Rebate Scheme** in 2007, more than \$35 million in rebates has been provided to householders for water saving products such as showerheads, swimming pool covers, garden goods and hot water re-circulators. In April 2010, a revised rebate for rainwater tanks was introduced and the scheme is being further revised to include additional water efficient gardening devices.

The South Australian Government is also continuing its participation in the **National Water Efficiency Labelling and Standards Scheme** which sets water-efficiency standards and requires

the labelling of showerheads, washing machines, toilets, dishwashers, urinals and some types of taps. The scheme has been reviewed and, from October 2011, will be expanded to include minimum water-efficiency standards for clothes washers and the water-efficiency labelling of 'combined' clothes washer/dryers that use water in the drying mode.

Examples of other Water for Good initiatives in this area:

- **SA Water's Urban Landscape Program** is developing information sources and tips for household gardeners to improve water use practices.
- **SA Water's Business Water Saver Program**, which works with high-use mains water customers to improve water use efficiencies, is being expanded to include all customers using over 25 ML a year.
- **The Department for Water** is leading the development of a program to improve the water use efficiency of publicly and privately owned buildings.
- **SA Water's leak detection and repair program** has been focusing on water mains in the Adelaide Metropolitan region. Leaks in the Mt Gambier network have also been detected. The repair phase will continue through 2010-11.
- **SA Water bills** are now provided on a quarterly basis to provide consumers with more timely information on the volume and cost of water they are using.

A key focus for the Commissioner for Water Security is educating the community about the main messages in **Water for Good**. The Plan's website is regularly updated and the Commissioner seeks opportunities to speak to community groups, industry and various arms of government. The new WaterConnect website, which went live in October 2010, is designed to provide information on all aspects of water, from the state and condition of South Australia's surface water and groundwater resources, to the locations of riverbank collapse, information about irrigator licences, and water levels for recreational use.



Commissioner Robyn McLeod, Charlesworth Nuts owner Brett Charlesworth and Local Government Association of SA President Felicity-ann Lewis are supporting participation in the *WaterWise Communities* initiative. *WaterWise Communities* is one of a number of **Water for Good** community education initiatives.

The Department for Water and SA Water are working to educate and encourage water wise behaviour through campaigns, rebate schemes, and the provision of various information tools. The **WaterWise Communities** initiative – a partnership of the Local Government Association, the South Australian Government and SA Water – is an excellent example of a collaborative effort to support behavioural change.

The Commissioner is also leading the implementation of an awards program to recognise the water security contributions of communities, individuals, schools, businesses, industry and government. The *South Australian Excellence in Stormwater Awards*, held in September 2010, were the first to be sponsored under the **Water for Good** Awards Program.

Rain, rivers, reservoirs and aquifers

The health of the River Murray, water storages, aquifers and groundwater systems continues to be a key focus of the South Australian Government, particularly in light of climate change research indicating a likely reduction in the average annual catchment yield of the Mount Lofty Ranges and Murray-Darling Basin.

Water for Good seeks to ensure that the entire length of the River Murray is a healthy, working waterway that continues to provide critical human needs for Adelaide and regional South Australia, supply irrigation for agriculture and horticulture, and sustain the environment.

South Australia continues to work proactively with the Murray-Darling Basin Authority and other jurisdictions in contributing to the development of a Basin Plan. Significant on-ground action has also been undertaken to protect and manage the River Murray in South Australia and support the communities and industries that rely on it.

Water for Good identified that, as a last resort, a temporary weir might need to be constructed at Pomanda Island, near Wellington, to protect the drinking water supply below Lock 1. Proactive management of the River and Lower Lakes combined with vastly improved inflows has meant that construction of this temporary weir has not been necessary.

Water wise at home ...

Thousands of South Australian householders, businesses and community groups are becoming smarter about water use by joining *WaterWise Communities*. A major initiative of the **Water for Good** community education campaign, *WaterWise Communities* has recruited more than 2,600 householders and 150 businesses and community groups who are now keeping in touch with water-saving activities going on in their local area and across the State.

Each has received a free kit of water-saving products. Those for households include a four-minute shower timer, a personal water-saving plan and a gardening calendar; while those for businesses and community groups include a checklist of tips on how to use water wisely throughout the workplace, and a window sticker for reception areas. The kits are available through 47 councils around SA.

... and away

The **Water for Good on Holidays** program has spurred business owners and travellers into action, with more than 190 caravan parks promoting water wise tips to their guests through a partnership with SA Parks.

Messages on bathroom mirrors remind guests to turn off the tap while brushing their teeth or shaving; messages in the shower remind them to limit showers to four minutes; and there's also a checklist of tips and a bookmark about saving water while on holiday.

Alan Rowett, owner of the Marion Holiday Park in Adelaide, and the Blue Lake Holiday Park in Mount Gambier, says, 'We're very keen to remind our guests that water is a precious resource in South Australia that needs to be valued by people on their holidays as well as when they're at home.'

The construction of the temporary weir at Pomanda Island has not been necessary

During the year, a range of emergency measures was implemented to mitigate the impacts of low inflows to the Lower Lakes and Coorong.

- Under the \$10 million Bioremediation and Revegetation Project, 6,000 hectares of exposed lakebed was seeded with native seeds and cereal rye, and more than one million wetland sedges and 130,000 native seedlings were planted around the Lakes shorelines and connected wetlands to mitigate the impacts of acidification on exposed lake bed.
- About \$1 million was provided to landowners in the region to fence 150-kilometres of lake-side boundary properties to protect exposed lakebeds and bioremediation activities.
- As an emergency response to prevent the impacts of acid sulfate soils, the South Australian Government built two temporary structures to regulate the flow of water and raise water levels. With improved flows and rapidly increasing water levels, the Narrung bund (separating Lake Albert and Lake Alexandrina) was partially breached to restore connectivity between the Lakes. The temporary flow regulator near Clayton was also partially breached to enable water to be released through the Goolwa Barrage, to balance flows through the remaining barrages, and to ensure that the Murray Mouth did not twist or move from a disproportionate barrage release.
- When disconnection of fish breeding habitats occurred as a result of low water levels, the Goolwa Barrage boat lock was used as a temporary fish passage to provide short-term connectivity and help save the native Congolli fish from extinction.

• Under the *Murray Futures* program:

- Irrigation pipelines to Langhorne and Currency Creeks, and potable pipelines to Narrung and Poltalloch Peninsulas, Raukkan Aboriginal Community, Langhorne Creek, Point Sturt and Hindmarsh Island, are now delivering water.
- The State Government Department of Environment and Natural Resources has released a long-term plan for the Coorong, Lower Lakes and Murray Mouth. It aims to secure the region as a healthy, productive and resilient wetland system that maintains its international importance. The Commonwealth Government approved \$21 million of funding for early works projects in the plan and the State Government contributed an additional \$2.3 million.
- The long-term plan and business case to access the remainder of the \$200 million allocated for this project is undergoing the Commonwealth's due diligence process.
- The upgrade and replacement of Woodlane Irrigation infrastructure is complete.
- Funding bids have been submitted to the Commonwealth Government under the *Private Irrigator Infrastructure Program*.
- A business case and integrated plan to access the remaining \$100 million allocated for the *Riverine Recovery Project* is undergoing the Commonwealth Government's due diligence process.

The work in the Coorong, Lower Lakes and Murray Mouth recently received national recognition in the prestigious *2010 Banksia Environmental Awards*.

South Australia continues to take measures to maintain a positive balance on the **Murray-Darling Basin Salinity Register** and to ensure salinity is managed so that water quality remains at levels suitable for human consumption. The Government has continued to explore opportunities to use the saline water produced from salt interception schemes along the River Murray.



The Murray Mouth flows to sea, October 2010.



Wayne Brown of Rural Solutions SA planting seedlings under the Bioremediation and Revegetation Project.

Regional-scale studies on the impacts of climate change on water resources

in South Australia are forming another important body of work. Research to date has been aimed at improving knowledge of how climate change might affect groundwater levels, water availability and salinity. The Department for Water has completed an initial risk assessment to determine the implications of climate change for priority groundwater areas. A model has also been developed to predict the impacts of climate change on groundwater resources.

The water allocation planning (WAP) process is being reformed to ensure these plans are delivered in a more efficient, coordinated and timely manner including legislative amendments introduced in October 2010. Progress is being made on the completion of more WAPs, and reviews of existing plans are being undertaken in key areas of the Mount Lofty Ranges, the Murray-Darling Basin, the South East and Central Adelaide.

From 1 July 2009, new legislation enabled the **unbundling of existing water licences** in South Australia. The main benefit is to ensure the efficient purchase or transfer of water allocations or water access entitlements.

To properly manage our water systems, we need appropriate knowledge and data. In South Australia, an \$8.6 million program is strategically reviewing, expanding or upgrading the **water resources monitoring network** to improve the regularity of statewide data collation, assessment and reporting, and to work with the Bureau of Meteorology. During 2009-10, the South Australian Government worked with the Bureau to finalise the 2010 statewide Strategic Water Information and Monitoring Plan. The WaterConnect web site has also been developed as a one-stop-shop for industry, government and the broader community to access information about the condition and use of the State's water resources.

To manage the **impacts of plantation forests** on water resources, South Australia is putting in place measures to implement the Government's statewide policy framework. Legislative changes to the *Natural Resources Management Act 2004* are being considered. A guide is also being developed for the water managers who will implement the framework.

The South Australian Government is setting **environmental values** and developing **water quality improvement plans** for critical water resources to help ensure that catchment management, monitoring and improvement programs are targeted and efficient.

Planning

The availability and reliability of water varies across South Australia. Planning for supply with such a high level of uncertainty is complex and requires a flexible approach.

Water security across the State is a priority for the Government. A vital component of **Water for Good** is the development of regional **water demand and supply statements** (referred to in the original document as 'plans'). These statements are being developed for the eight Natural Resource Management Regions of South Australia. They are intended to be high-level documents indicating the state of the resource for each region. The aim is to achieve a consistent approach to anticipating supply and demand in the regions and to trigger a formal planning process in the event of any shortfall.

Demand and supply statements are being developed for all eight NRM regions in South Australia

The statements, to be reviewed annually, will be used to guide decision-makers in planning for the timing and nature of future demand management or supply options. They will help ensure that long-term solutions are based on a thorough understanding of the state of local resources, the demand for them, and likely future pressures, including the impacts of climate change. To aid the process, a regional demand and supply projections model was completed late in 2009.

The South Australian Government recognises that more needs to be done to improve the quality of water to **remote communities**. In late 2009, it secured \$5.4 million of Commonwealth Government funding to improve water supply infrastructure, metering and community water conservation programs in the Amata and Mimili remote Aboriginal communities.

Water-sensitive urban design is an important initiative to improve the way we use water in urbanised areas. It involves designing the urban landscape in ways that make the best use of all potential sources of water, rather than relying on mains supply. Targets for implementing water-sensitive urban design are currently behind schedule, but will be released in the near future. The Government is also engaging the new Goyder Institute for Water Research to develop the best approach to mandate water-sensitive urban design from 2013, in consultation with industry.



Fostering innovation and efficiency

Investment in innovation and research is fundamental to securing and sustainably managing South Australia's water into the future.

The new \$50 million **Goyder Institute for Water Research**, announced in May 2010, will position South Australia as a world leader in water innovation and science. It will provide independent scientific advice on the State's water system, improve the Government's ability to forecast threats to water security, and develop an integrated approach to water management. The institute will also produce cutting edge science to develop innovative water management strategies for the ongoing water security of all South Australians. It is a partnership between the State Government, CSIRO and the three South Australian universities. The State Government is providing \$25 million over five years and this will be matched in kind by the partners.

The Department for Water continues to collaborate with Flinders University to ensure the success of its **National Centre for Groundwater Research and Training** research program and for the establishment of a Super Science site in McLaren Vale. The **NRM Research Alliance** will also facilitate collaboration of investment and research.

South Australia is participating in the Monash University Research Program **Cities as Water Supply Catchments**. The initiative is a national research program that aims to deliver a fundamental change in the way urban communities manage their stormwater. Its research, together with that of the Goyder Institute, will influence the introduction of mandatory water-sensitive urban design in SA. The stormwater strategy currently being developed by the Department for Water will consider water research.

In 2009, **CSIRO**, with support from the South Australian Government, completed initial research into the potential to treat stormwater injected into an aquifer to a relatively high quality. Further research has recently been announced, to assess further options for stormwater use.



The Goyder Institute for Water Research will position South Australia as a leader in water innovation and science.

Pricing and market instruments

Delivering a secure water supply into the future requires a mix of supply and demand measures, and efficient pricing and market reform are integral to balancing this mix. Significant progress has been made towards appointing the Essential Services Commission of South Australia (ESCOSA) as the independent economic regulator for monopoly suppliers of urban and regional water and wastewater services. This change will form part of the water industry reform legislation.

It is proposed that ESCOSA's role will be to:

- develop and review water industry codes and guidelines
- regulate prices for the water industry, subject to transitional arrangements with the Government
- administer licensing arrangements for those providing water and sewerage services
- improve customer and industry dispute resolution through participation in an Ombudsman scheme.

Mains water prices have begun their rise towards a more cost-reflective price and this will continue through to 2014. The revenue raised is contributing to critical water security costs, including the 100 GL Adelaide Desalination Plant.

Legislative and regulatory changes

For the water industry in South Australia to change and improve, the governance and institutional arrangements that support it must change. A single, new *Water Industry Act* proposes to provide the legislative framework to support a contemporary and developing water industry by enabling an integrated approach to water demand and supply planning and the regulation of the industry.

Specifically, the *Water Industry Act* proposes to:

- ensure that integrated water demand and supply planning is undertaken to identify potential timing gaps
- provide for the Essential Services Commission of South Australia (ESCOSA) to be the water industry's economic regulator
- ensure the Energy Industry Ombudsman covers the water industry
- provide for a regulator of safety and technical standards in the water industry
- provide the appropriate powers and duties for water entities to operate effectively. These are complementary to any obligations that arise from the independent economic regulation-licensing regime.

Assessment of Greater Adelaide's Water Security

Water for Good developed demand-supply projections out to 2050 based on two prudently chosen scenarios – moderate dry-year and extreme dry-year (refer to tables 3 and 4 in the Plan). They are intended to illustrate the possible water demand and supply levels in any given year, depending on population, climate change, the state of Mount Lofty Ranges storages, River Murray inflows, and the impacts of mitigation measures. Moderate and extreme dry-year scenarios were considered the most useful and sensible for long-term planning for the security of supply in worst-case conditions.

2009-2010 supply and demand

During 2009-10 review period, the State recorded significantly higher rainfall than in the previous three years and the result was greater than projected inflows to the Mount Lofty Ranges reservoirs and the River Murray. However, these inflows still fell below the historic averages for both the reservoirs and the river system.

Figure 1 shows that inflows to the storages increased by more than 200 per cent, from 46.6 GL in 2008 to 141.8 GL in 2009. This volume is greater than the past 10-year and 20-year average inflows but is only 82 per cent of the long-term average inflow. Inflows into the River Murray system increased by 73 per cent, from 1870 GL in 2008-09 to 3230 GL in 2009-10 (see Figure 2). This volume represents about a third of the long-term average inflow.

The increases in rainfall and associated reservoir and river inflows during the 2009-10 water year have continued into 2010-11. Mount Lofty Ranges reservoir inflows during July, August and September 2010 totalled 94.7 GL. This is already greater than the totals during 2006, 2007 and 2008. Figure 3 shows that River Murray inflows since August 2010 are higher than the most recent 10-year average and also the long-term average. In August 2010, River Murray system inflows were 1600 GL and during September 2010 they reached 2850 GL.

Figure 1
Annual inflow to the Mount Lofty Ranges reservoirs

Source: SA Water

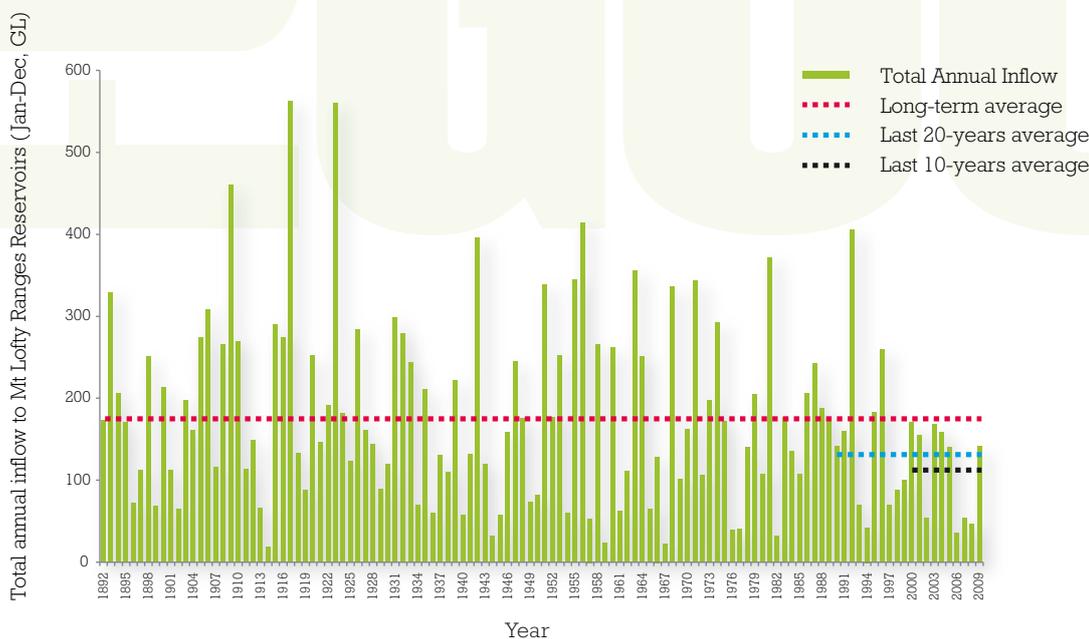


Figure 2
River Murray System inflows 1891-2010
(Including Inflows to Menindee and Excluding Snowy Releases)

Source: Murray-Darling Basin Authority

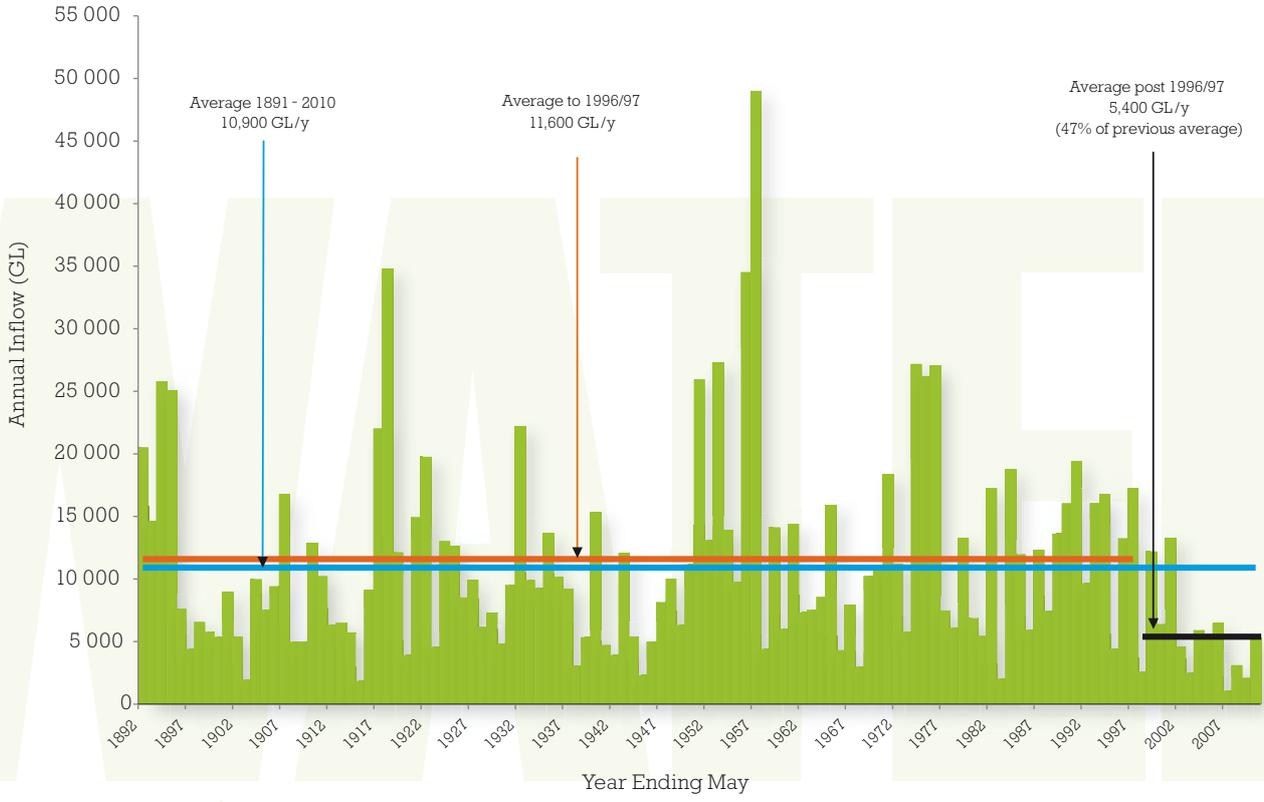
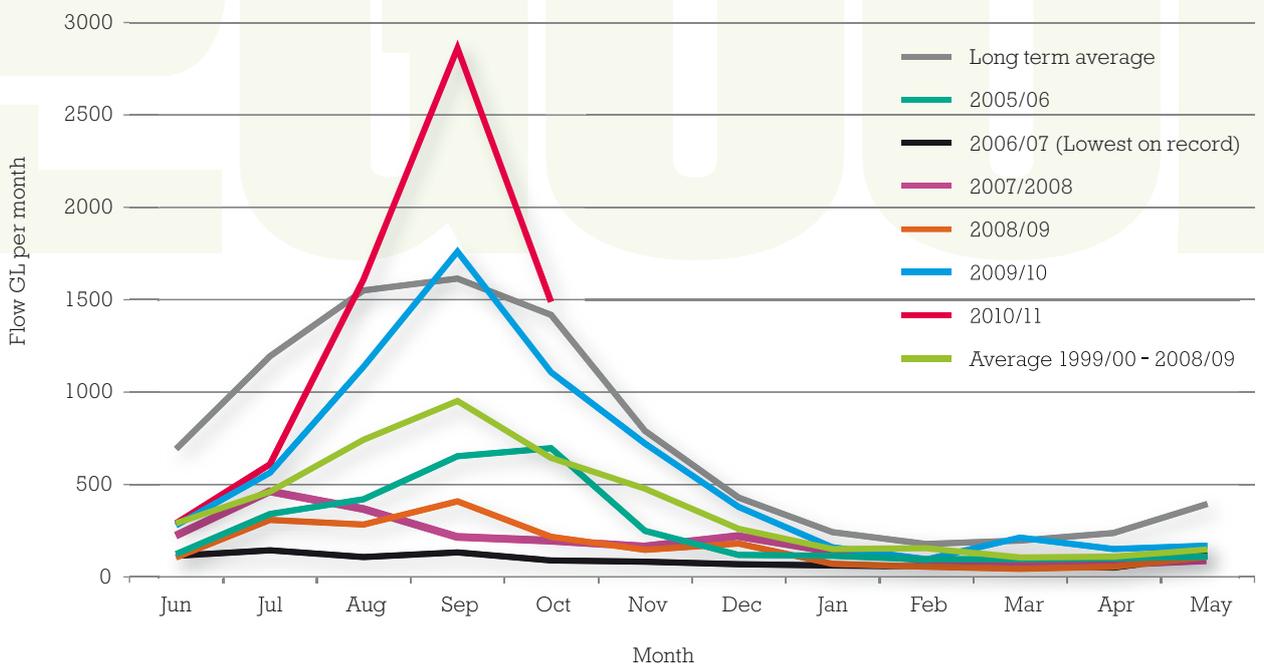


Figure 3
River Murray System inflows (Excluding Menindee Inflows and Snowy Releases)

Source: Department for Water





During the 2009-2010 review period, demand for mains water in the Greater Adelaide region was lower than the moderate and extreme dry-year scenarios in **Water for Good**. Mains water consumption for Greater Adelaide was 155 GL (see Figure 4) compared with projected demands of 220 GL in the moderate dry-year scenario and 222 GL in the extreme dry-year scenario.

In November 2009 and again in May 2010, Level 3 enhanced water restrictions were eased. The community responded well and consumption continued to go down. Water Wise Measures will come into effect on 1 December 2010.

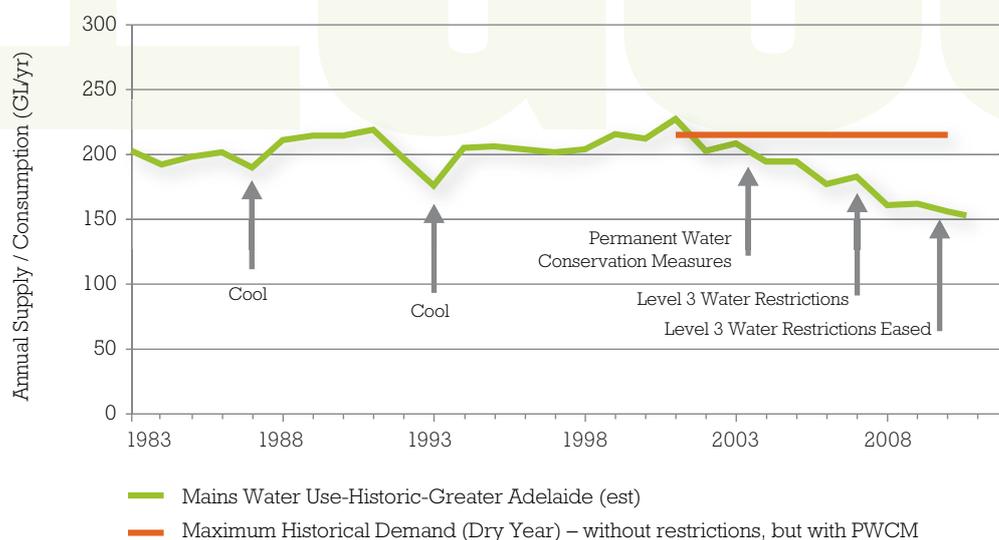
2009-2010 actual and projected available supply

One of the key aims of the **Water for Good** Annual Statement is to provide the demand-supply status for each region of the State and compare it with projections. At this stage, projections have been developed for the Greater Adelaide region only, so they are the focus of this review. Demand and supply statements will be developed for all eight Natural Resources Management regions by 2014.

Significantly higher rainfall and associated inflows to the Mount Lofty Ranges reservoirs resulted in a surplus in available water supply for the Greater Adelaide region during the review period.

Figure 4
Mains water consumption for Greater Adelaide

Source: SA Water



A 48 GL surplus of mains water was recorded, compared with projected moderate and extreme dry-year scenario deficits of 23 GL and 42 GL respectively (see Figure 5, left). If the quantities of drinking quality and non-drinking quality water (i.e. including recycled stormwater and wastewater) are combined, there was a surplus of 80 GL (see Figure 5, right). The projection for a moderate dry-year scenario was a 9 GL surplus and, for an extreme dry-year scenario, a 10 GL deficit. (See figure 5).

Figure 6 shows the projected total available water supply mix for Greater Adelaide in 2014, 2025 and 2050 in a moderate dry-year scenario.

Due to an increased number of stormwater harvesting and reuse projects due to be completed by 2013, a larger volume of recycled stormwater is anticipated to contribute to the total water supply mix earlier than the original projection of 2025.

As Greater Adelaide's water supply increases to 2050 the total quantity taken from the River Murray will not increase.

Figure 5
Greater Adelaide 09-10 available supply compared to projections

Source: Department for Water

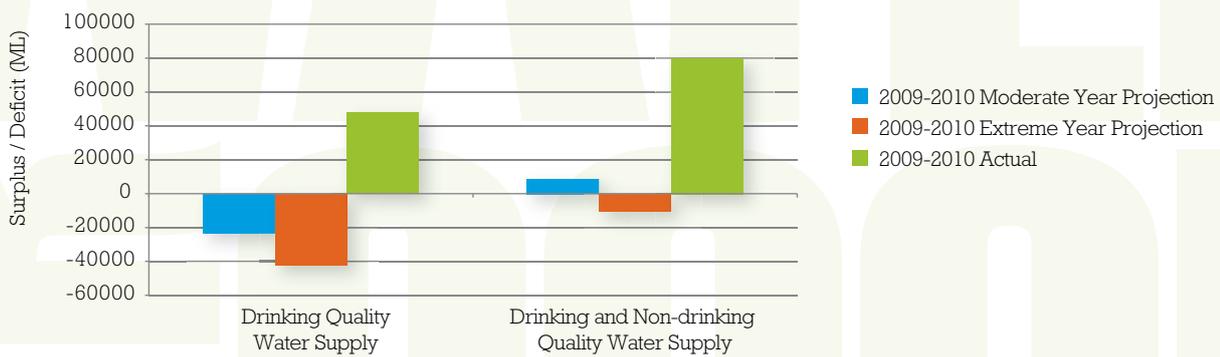
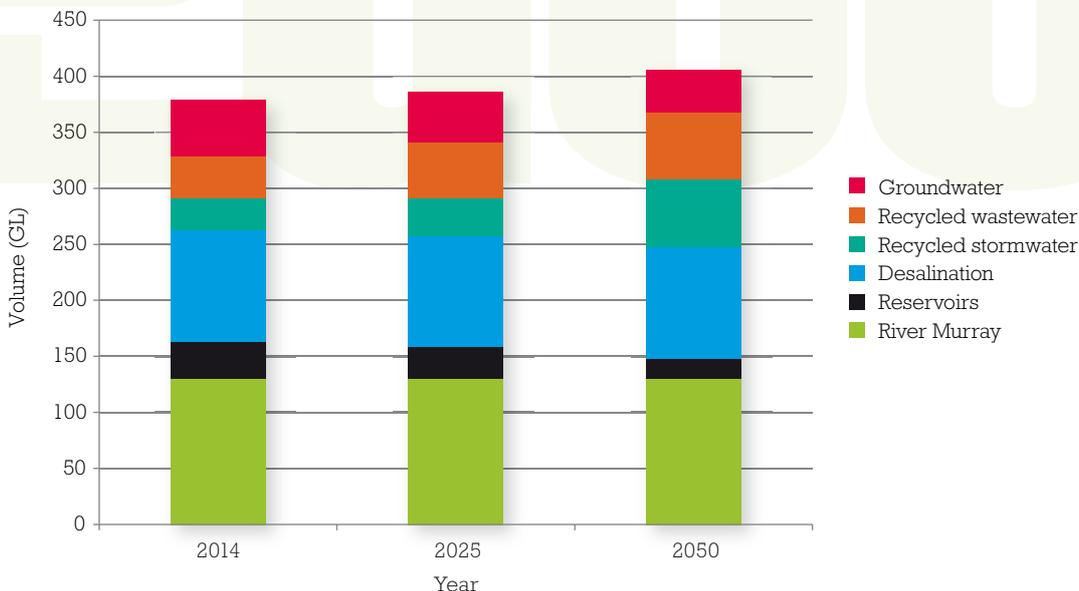


Figure 6
Greater Adelaide projected water supply mix

Source: Department for Water



Review of assumptions

During the development of **Water for Good**, a number of factors were identified that could affect the demand-supply balance for Greater Adelaide and lead to a surplus or deficit. To better understand our future water supply and the demands it will face, it is important to recognise the influences.

Supply drivers

- Mt Lofty Ranges supply
- River Murray supply
- Desalinated water supply
- Alternative supplies
- Climate change

Demand drivers

- Demand
- Climate change
- Population growth
- Demand management measures

Supply drivers

Mount Lofty Ranges supply

As mentioned previously, inflows to the Mount Lofty Ranges storages increased by more than 200 per cent between 2008 and 2009 (See Figure 1) and this meant SA Water reduced its draw on the River Murray for use in Greater Adelaide. While the volume of inflow was greater than the past 10- and 20-year averages, it was still not as high as the long-term average.

River Murray supply

Inflows into the River Murray system increased 73 per cent from 1870 GL in 2008-2009 to 3230 GL in 2009-2010 (See Figure 2). This represented 35 per cent of the long-term average inflow. In normal circumstances, South Australia has a minimum entitlement of 1850 GL, of which SA Water has a five-year rolling licence for 650 GL for Metropolitan Adelaide water supply (130 GL/a on average). In extreme circumstances, special water-sharing arrangements are triggered to ensure South Australia has access to water for Critical Human Needs.

In 2009-2010, SA Water used only 56.9 GL of River Murray water to supply Greater Adelaide (the **Water for Good** extreme dry-year scenario assumed 160 GL) thus freeing up water for the environment. Such a reduction is common in years when natural inflows to the Mount Lofty Ranges reservoirs are high, as SA Water prefers to draw on the reservoirs before pumping water from the River Murray.

Desalinated water supply

Because the Adelaide Desalination Plant is still under construction, no desalinated water was supplied to the Greater Adelaide region during 2009-2010. This is consistent with **Water for Good** projections.

Alternative supplies

During the review period, nine stormwater harvesting projects were announced in Greater Adelaide and these are expected to harvest approximately 8 GL a year in total. These projects are due to be completed in June 2013. We will then be ahead of **Water for Good** projections with respect to the volume of recycled stormwater contributing to the total water supply mix.

Climate change

Based on the most current science, the **Water for Good** projections assume that climate change impacts will reduce inflows to the Mount Lofty Ranges storages by 41 per cent by 2050 (i.e. a gradual reduction of 1 per cent per annum). While there was no decrease during the review period, year-to-year natural variability is not unusual and is expected even in an environment of long-term climate change. Current advice from the Department for Water is that the **Water for Good** projections remain valid.

Demand drivers

Demand

During the review period, demand for mains water in the Greater Adelaide region was significantly lower than in the **Water for Good** scenarios. See Figure 3.

Climate change

Climate change had no influence on demand during the review period and current advice from the Department for Water is that the **Water for Good** projections remain valid.

Population growth

Water for Good adopted the population growth projections modelled by the Department of Planning and Local Government (DPLG) for the Plan for Greater Adelaide. When extrapolated out to 2050, the DPLG projections suggest a 37 per cent increase in total. In 2009, actual population growth slightly exceeded projections, however advice from DPLG suggests that they remain valid and do not require review.

Demand management measures

The **Water for Good** projections assume that demand management measures implemented between 2010 and 2050 will equate to 50 GL in savings. These are in addition to those calculated under the *Water Proofing Adelaide Strategy* and equate to gradual water savings of 1.25 GL a year. It is difficult to quantify the savings achieved as a result of demand management measures to date, however it is expected that initiatives such as the *WaterWise Communities Program* and the *H₂OME* rebates will have some effect in the longer term.

Significantly, **Water for Good** demand projections assume no water restrictions. As restrictions were in effect during 2009-2010, it is reasonable to expect that the demand would have been higher without them. However, the consensus is that, even in the absence of restrictions, the demand on mains water from the past year's increase in population would have remained below the moderate and extreme dry-year scenarios. Education initiatives and the community's water wise behaviour have had a significant positive impact.



The Year Ahead



In the next review period, a number of issues have the potential to influence supply and demand for water into the future. They include:

- The Murray-Darling Basin Plan
- Water Wise Measures
- New water-pricing regime
- Legislative reform
- Supply from the Adelaide Desalination Plant.

The Murray-Darling Basin Plan

The development of a Murray-Darling Basin Plan is a once in a lifetime opportunity to address the long-term over-allocation of water resources and ensure we have a sustainable and healthy river system for the benefit of all who depend on it.

The Murray-Darling Basin Authority has released its Guide to the Proposed Basin Plan and this is now the subject of intense debate and community consultation. In 2011, the Authority is scheduled to release its full Proposed Basin Plan, and will again seek community response. The South Australian Government is preparing a response to the Guide and will subsequently respond to the

Proposed Plan. South Australia will be strongly advocating for sufficient environmental flows to reach the Murray Mouth and that the efforts already made by our irrigators be taken into account, along with South Australia's early actions to cap our take from the River. In essence, it will seek to ensure the Plan provides a management framework that re-balances the system in a way that restores the Basin to health and keeps the Basin healthy so that it has the capacity to sustain viable and productive industries and communities. The Government also will continue to provide the Authority with expert advice, data and information on issues of key importance to South Australia.

Water Wise Measures

In August 2010, it was announced that Level 3 enhanced water restrictions would end as of 30 November 2010 for the majority of the State, and new Water Wise Measures would apply from 1 December. The impact of this relaxation will be closely monitored, particularly for its effect on demand. Continued emphasis on the importance of sensible water-use behaviours will be vital.

South Australia is preparing a response to the Guide to the Proposed Murray-Darling Basin Plan, strongly advocating for sufficient environmental flows to reach the Murray Mouth.



New water-pricing regime

The price of our water needs to reflect its true cost and value but impacts on consumers must be managed. In 2010-11, the price of water supplied to SA Water customers increased 21.7 per cent in real terms. This increase will help fund critical water security investment for the future, including Adelaide's 100 GL desalination plant.

Legislative reform

The proposed new water industry legislation, heralds a new era in water management and provides a framework for greater innovation and competition. Independent economic regulation and licencing of the industry, including price regulation, will become the responsibility of the Essential Services Commission of South Australia (ESCOSA). Consistent with national agreements, the Government is also considering including arrangements for the recovery of water planning and management costs. The Energy Industry Ombudsman will assume responsibility for coverage of the water industry, and regulation of safety and technical standards will be streamlined.

Supply from the Adelaide Desalination Plant

The commissioning of the Adelaide Desalination Plant in April 2011 will be an historic event. For the first time in the State's history, South Australians will have a significant water supply independent of climate. The plant will be an integral component of Greater Adelaide's water security in an extreme dry-year scenario, i.e. when we receive less than 18 GL in natural inflows to the Mount Lofty Ranges reservoirs (similar to those experienced in 2006-07).

Due to recent rains, it is anticipated that the majority of our water for the 2010-11 water year will be sourced from the reservoirs.

Further activity planned for 2010-11

- The proposed new *Water Industry Bill* will be debated in Parliament. New safe drinking water laws are also proposed. The latter are designed to ensure best practice water quality standards are maintained as the water supply becomes increasingly diversified.

- The new Department for Water will continue to expand its policy focus to include urban water management, reflecting the need to diversify South Australia's supplies. Collaboration with stakeholders, particularly local government, will be essential to achieve a coordinated approach. The flow of water does not respect council or state boundaries.
 - The Goyder Institute for Water Research will deliver research to underpin State Government policy objectives – in particular, research into the most effective way to integrate diversified water supplies. South Australia will also continue its participation in the Cities as Water Supply Catchments research program.
 - Targets for water-sensitive urban design, and completion of the State Government's Stormwater Strategy in early 2011 will provide a roadmap for integrating recycled stormwater into water-sensitive urban design. The strategy will be the first step in developing a stormwater master plan.
 - SA Water will continue to investigate water supply/augmentation options for the Eyre Peninsula and the township of Hawker in the Flinders Ranges.
 - The Department for Water will lead the finalisation of Water Security Standards.
 - Work will continue on seven stormwater projects, funded through round one of the Commonwealth Government's *Special Call for Stormwater Harvesting and Reuse Projects*. By the end of 2011, three of the schemes – Adelaide Airport Stormwater Harvesting and Reuse, Barker Inlet and Adelaide Botanic Gardens – should be on schedule for commissioning in 2012.
 - State water recycling guidelines will be released in early 2011. The installation of infrastructure to increase wastewater reuse by councils (through the *Statewide Wastewater Recycling Project*) will be completed, and monitoring of reuse will begin.
- The Government will continue to implement measures to improve water-use efficiency in public and commercial buildings
- Demand management measures will include: working towards mandating swimming pool covers by 2012; implementing Water Wise Measures and revised water rebates; and running the **Water for Good** Awards Program and targeted water education programs. The Government will also continue to roll out the Irrigated Public Open Space scheme for schools and councils throughout the State.
 - The Government will continue to implement measures to improve water-use efficiency in public and commercial buildings.
 - The Government will continue regional-scale studies on the impacts of climate change on water resources, and the review and expansion of the water resources monitoring network.
 - Water Allocation Plans will continue to be developed, but in a more efficient and timely manner.
 - Work will continue on the development of regional demand and supply statements for all regions so that all are in place by 2014.
- While South Australia's water supply outlook looks positive for 2010-11, we must continue to use water wisely and work to diversify our water supplies. The continued implementation of **Water for Good** actions will be vital.
- Despite the significant progress that has been made in the past year, implementing a suite of 94 wide-ranging actions – within set timeframes – does not come without challenges. Significant collaborative effort will be required in a number of areas to ensure the Plan's targets are achieved as early as possible.
- For the sake of water security in South Australia, we must keep on the **Water for Good** track.

**Department for Water
Head Office**

25 Grenfell Street
Adelaide 5000

ISBN 978-1-921528-34-7

www.waterforgood.sa.gov.au
www.sa.gov.au