A thirst for change

Water Proofing Adelaide

2005–2025

A blueprint for the management, conservation and development of Adelaide's water resources to 2025.

Government of South Australia

action Salinity & Water AUSTRALIA

WaterCare
It's in your hands

Protecting our valuable water

"Water is a precious resource that needs to be managed carefully for the benefit of all South Australians.

"Water Proofing Adelaide is the SA Government's Strategy involving government, business and community working together to ensure that our water resources are protected for future generations, and for continued economic and social prosperity."

John Hill
Minister for
Environment and Conservation

Michael Wright
Minister for
Administrative Services

The challenge

Water is a precious commodity in any community, but for South Australian residents that statement is particularly true.

At the beginning of the new millenium, Adelaide faces significant challenges in relation to water supply and management, with increased competition from various residential, agricultural and industrial users. In addition, we need to prepare for the expected impacts of climate change.

In 2003, residents faced the first compulsory water restrictions imposed since the opening of the Mannum to Adelaide pipeline in 1955.

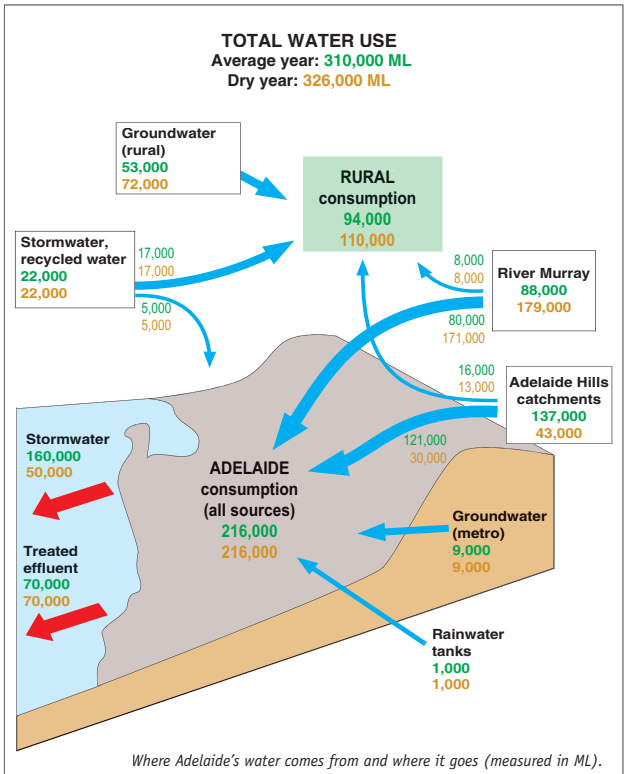
The stresses on the River Murray, a key water resource for Adelaide, have become increasingly evident and flows in rivers and streams across the Adelaide Hills are decreasing.

Similarly, most underground resources in the regions surrounding metropolitan Adelaide are either approaching full allocation or, in some cases, are overallocated.

As Adelaide's population grows, and as industrial and agricultural water usage increases, the demands on our water resources are also expected to grow.

Proper management, development and conservation of water is critical to ensure that the residential, agricultural and commercial water needs of Adelaide continue to be met.

"... a series of initiatives to ensure that even in drought years, impacts on the residents of Adelaide can be effectively managed."



Where Adelaide's water comes from and where it goes (measured in ML).
Sources: DWLBC, SA Water.

resources

The solution

The SA Government established Water Proofing Adelaide to develop a strategy to ensure Adelaide has enough water to meet its needs up to 2025 and beyond.

The project involved consultation, research and review to assess a broad range of options based on their environmental, social and economic impacts. This process highlighted that there is no single quick fix solution.

The end result is 'Water Proofing Adelaide: A thirst for change', which sets out key strategies to ensure the sustainable and productive management of our water resources.

When fully implemented, this plan will allow Adelaide to grow and develop while at the same time providing a reasonable level of reliability in drought years and as the impacts of climate change become more evident.

There are three aspects to the Strategy, supported by key initiatives designed to achieve the aims of the program:

1 Management of our existing resources
2 Responsible water use
3 Additional water supplies

With the support of the community and industry, the Strategy will provide sufficient mains water to meet our needs to well beyond 2025.

An important outcome of the Strategy is to allow us to face even major droughts without the need for extreme water restrictions, such as total bans on the use of water for gardening and external purposes. However, in some very dry years, it may still be necessary to have some form of restriction to ensure there is sufficient water for all water users.

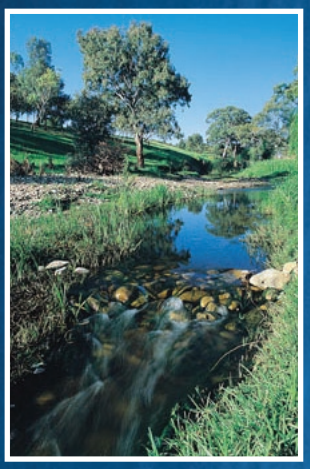
In addition to providing a reliable mains water supply, the Strategy will also achieve many positive environmental and economic outcomes. It will contribute to the protection and restoration of the River Murray and the water resources of the Mount Lofty Ranges.

" The Strategy should allow us to face even major droughts without the need to impose extreme water restrictions ... "

Want to know more?

For more information and a copy of the full Strategy:

- Visit www.waterproofingadelaide.sa.gov.au
- Call SA Water on 1300 650 950, or
- Contact the Department of Water, Land and Biodiversity Conservation on 8463 6800



Managing existing resources

More than 90% of the water currently used in and around Adelaide ultimately derives from three key sources – the River Murray, the Adelaide Hills catchments and various groundwater resources.

The Strategy indicates opportunities to expand and diversify Adelaide's water resources. However, the existing three sources will remain the primary water resources for Adelaide for many years to come. Each one faces various pressures and risks, so it is essential we manage them well to ensure they remain available to future generations.

Water Proofing Adelaide has identified 14 key strategies to manage, conserve and develop these sources.

Strategy number	Strategy	Completion 2005-10	Completion 2010-15	Completion 2015-20	Completion 2020-25
Managing our existing resources					
River Murray					
1	The SA Government will work with upstream States to boost the Intergovernmental Agreement and secure 1,5000,000 ML for environmental purposes in the Murray-Darling Basin by 2018.			2018	
2	The number of salt interception schemes in SA will be increased from two to seven by 2010 in an effort to reduce salt inflow into the River.	2010			
3	The SA Government will work with the MDBC to ensure salinity levels in the River Murray at Morgan in South Australia remain below 800 EC units at least 95% of the time. This is equivalent to a salt concentration of about 500 mg/L – the limit recommended by the Australian Drinking Water Guidelines.				
4	The SA Government will provide assistance packages to dairy farmers on the lower Murray swamps between Mannum and Wellington to enable rehabilitation of some properties and allow marginal properties to be taken out of production. This will enable regeneration of natural environments in some areas and will reduce the amount of pollutants entering the River.	2010			
Adelaide Hills					
5	Surface and groundwater supplies in the western Mount Lofty Ranges (including the sections of the Gawler, Torrens and Onkaparinga rivers which cross the Adelaide Plains) have been placed under a Notice of Intent to Prescribe and a Notice of Prohibition. If prescription goes ahead they will be brought into a regime providing: • sustainable management and use of water; • a means to balance the needs of all users, including mains water users, primary production, stock and domestic supplies and water-dependent ecosystems; • protection of sources of Adelaide's domestic water supply and reduction of our reliance on the River Murray in the longer term; • more secure access rights to water users (which is also an asset to users); • potential for tradeable water licences; • water to support and sustain dependent ecosystems; and • environmental flows downstream of reservoirs to improve water quality in urban watercourses.				
6	The *Natural Resources Management Act 2004* will deliver an integrated and transparent natural resources management system which aims to ensure South Australia's resources are used sustainably. This structure replaces the current system of more than 70 boards located around the State which separately manage issues relating to water, pest plants and animals and soil conservation.				
7	Updated planning strategies for the Mount Lofty Ranges Watershed will protect the region from inappropriate development that may impact on water quality.	2005			
8	The Adelaide and Mount Lofty Ranges Natural Resources Management Board has been established to deliver integrated and transparent management systems to the region.	2005			
9	Strategies will be evaluated and introduced to reduce pollution from existing developments in the Adelaide Hills, including improving septic tank management, and fencing off more rivers and creeks to prevent stock access.				
10	Complex existing management arrangements for water resources in the Adelaide Hills will be reviewed and simplified to clarify overlapping responsibilities involving State and local government, semi-government and community organisations.	2010			
Groundwater					
11	A new groundwater management regime in the Northern Adelaide Plains prescribed wells area will reduce extractions to sustainable levels, maintaining the resource for future generations.	2007			
12	Opportunities for further expansion of schemes which substitute recycled water for groundwater use in some parts of the Northern Adelaide Plains will be investigated.	2010			
13	The SA Government will explore ways of better managing groundwater resources in the Adelaide urban area to prevent them from being over exploited.	2010			
14	Current permanent water conservation measures, applicable to mains water users, may be extended to include groundwater and other water resources following a period of community consultation.	2010			

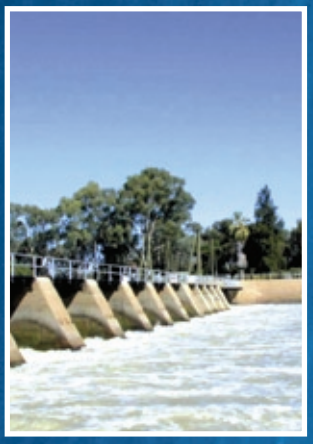
Responsible water use

Many South Australians are already taking measures to save water. The most recent Australian Bureau of Statistics (ABS) reports indicate that our in-house water use is amongst the lowest in Australia and widespread drought in the early 2000s made many people even more aware of the need to use water carefully. Water Proofing Adelaide has identified a number of key strategies to achieve further gains in our water use efficiency. If the proposed strategies are implemented, it is forecast that:

- Households will contribute to improved efficiency without significant impacts on our lifestyle. This means about 30,000 ML less water will be used each year, than would have been the case if none of the proposed strategies were implemented.
- Overall water use by industrial and commercial users will be reduced by about 2,000 ML per annum.
- Mains water use for public purposes (includes watering of parks, garden, ovals, etc; water used in public buildings; and losses from the mains water system) will be reduced by about 3,000 ML per year.

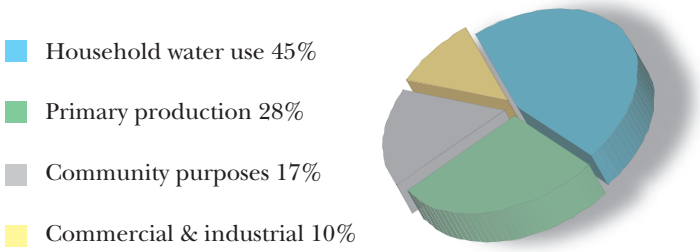
Strategy number	Strategy	Completion 2005-10	Completion 2010-15	Completion 2015-20	Completion 2020-25
Responsible water use					
Household water use					
15	A nationally-recognised Water Efficiency Labelling Scheme (WELS) will be implemented. This will require the labelling of many domestic water-using appliances, fixtures and fittings to provide information about water efficiency. It is anticipated that savings of 8% are achievable over a 10 year period.	2007			
16	The SA Government will pro-actively promote a 'Smart Water Mark' scheme due to be implemented by 2007 and which seeks to accredit water-efficient garden products, water-efficient organisations, etc.	Commence 2007			
17	Education and conservation programs, including a targeted voluntary water audit program, will be implemented and supported by the SA Government.	Commence 2007			
18	From July 2006 regulations will require most new home developments to have a rainwater tank plumbed in to the house for some household purposes.	Commence July 2006			
19	Water conservation programs will encourage the uptake of water efficient devices in household gardens. These programs along with the continuing trend towards smaller gardens will reduce domestic water use by 7,000 ML per year by 2025.				
20	The SA Government will investigate ways of making new homes more water efficient.	2008			
Commercial and industrial water use					
21	Inefficiencies in some commercial and industrial settings, particularly in regard to inefficient water appliances and some older air conditioning systems, facilities and processes, will be identified through the SA Water audits program.				
22	Large commercial and industrial water users will be encouraged to adopt environmental management systems to both minimise environmental impact and optimise water recycling and water use.				
23	The SA Government and industry will take the lead in encouraging the development of environmental management systems for commercial and industrial premises.	2010			
Agricultural water use					
24	Surface and groundwater supplies in the western Mount Lofty Ranges, including those used for agricultural production, will be brought under a more sustainable management regime.		2015		
25	Natural resources management legislation will deliver an integrated system to ensure South Australia's resources are used sustainably.				
26	The SA Government, in consultation with the agricultural and horticultural industry, will provide ongoing education, training and extension programs to improve knowledge of best practice irrigation systems.	Commence 2006			
27	Opportunities to expand the use of stormwater and recycled water resources as alternatives to using rivers and groundwater will be explored for primary production.				
Community purposes water use					
28	A voluntary water audit scheme already in place for industrial and commercial water users will be expanded to provide audits of large irrigation systems used for public and recreational purposes.	Commence 2007			
29	The SA Government will pro-actively promote the 'Smart Water Mark' scheme due to be implemented by 2007 and which seeks to accredit water-efficient garden products, water-efficient organisations, etc.	Commence 2007			
30	The Water Efficiency Labelling Scheme will allow public and community groups to choose water-efficient appliances when installing or replacing systems within public buildings.	2007			
31	The SA Government has developed a Greening of Government Operations Framework which includes eight priority areas for greening: Energy, Water, Waste, Built Facilities, Travel and Fleet, Procurement, Human Resources, and Policies and Guidelines. As part of the Greening of Government Operations Framework, all State Government agencies are implementing an action plan for Priority Area 2: Water Conservation and Wastewater Management.	2005			
32	Organisations managing Adelaide's parks and gardens will be encouraged to look at replanting some areas with water-efficient vegetation.				

33	A code of practice that encourages irrigation efficiency for public purposes water use will be developed by the SA Government in consultation with the Irrigation Association of Australia, Local Government Association of SA, Botanic Gardens and sporting associations.	2007			
34	High-volume community purpose water use organisations will be required to achieve 'Smart Water Mark' scheme accreditation.		2012		
35	Mains water used for community purposes may, in some situations, be substituted with lower quality water such as recycled water, rainwater and stormwater.				
36	Legislation that provides the cities of Port Adelaide/Enfield and Adelaide with free water will be reviewed in consultation with the councils.	2006			
Service provider use					
37	The Hope Valley aqueduct is to be covered or replaced with a pipe, which will reduce losses.	2007			
38	Further opportunities to reduce leakage in the reticulation system will be assessed on a triple bottom line basis (social, economic and environmental) and will result in further water savings.	2008			
39	Emerging technologies will be monitored as they become available, including chemical films to reduce evaporation losses from reservoirs and new techniques to improve leakage detection.				
	Pricing for urban water conservation				
40	The SA Government will encourage consumers to voluntarily contribute to a scheme that funds projects which reuse water for purposes other than drinking water (e.g. irrigation). 'Eco-Water' could be used to reduce Adelaide's draw on the River Murray and Adelaide Hills catchments.	2008			
	Reliability of mains water supplies				
41	The SA Government will manage the mains water resources to ensure that the mains water system provides supplies even in major droughts. Except for the most extreme circumstances there will be no need to impose total bans on the use of water for gardening and other external purposes.				



Current water usage

The diagram below shows that most of Adelaide's water is used by households and agriculture. These users along with community purposes and commercial and industrial users are beginning to become water efficient, however drought has made us more aware of the need to be even more careful.

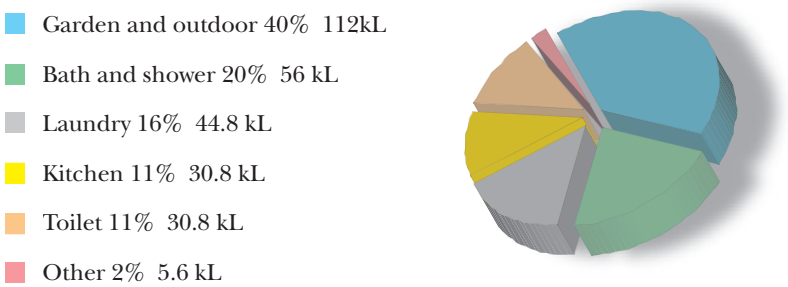


Adelaide water use, all sources 2000-01 (approximately 300,000 ML/annum).

The challenge

Responsible household water use involves using water more efficiently while meeting domestic, individual, lifestyle and amenity needs. Over time it is possible to reduce per capita household water use by up to 22% without significant impacts on our lifestyles.

Achieving this target will mean that by 2025 we will be using about 30,000 ML less water each year than we would have been using if we took no action. If we fail to meet this challenge then we run the risk of facing more frequent and severe water restrictions. Alternatively, we may need to use more expensive water sources to meet demand.



A breakdown of how water is used in the home (2000-01). Each home uses about 280 kL a year.

Additional water supplies and fostering innovation

In addition to the water supplies we already have, there are opportunities to use other, largely untapped resources. Water Proofing Adelaide investigated a large number of alternative water supply options and eliminated those that were found to be uneconomic and/or would result in adverse environmental or social impacts.

In the end, 22 strategies have been identified to provide additional water, foster innovation and benefit the environment. In particular, it is possible to use some of the stormwater and wastewater resources currently discharged into Gulf St Vincent, while at the same time reducing impacts on the environment.

If current technologies and these strategies are implemented by 2025, they will:

- Increase rainwater and stormwater use from 2,000 ML (2002) to about 20,000 ML per annum.
- Increase wastewater reuse from 14,000 ML per annum to more than 30,000 ML per annum.

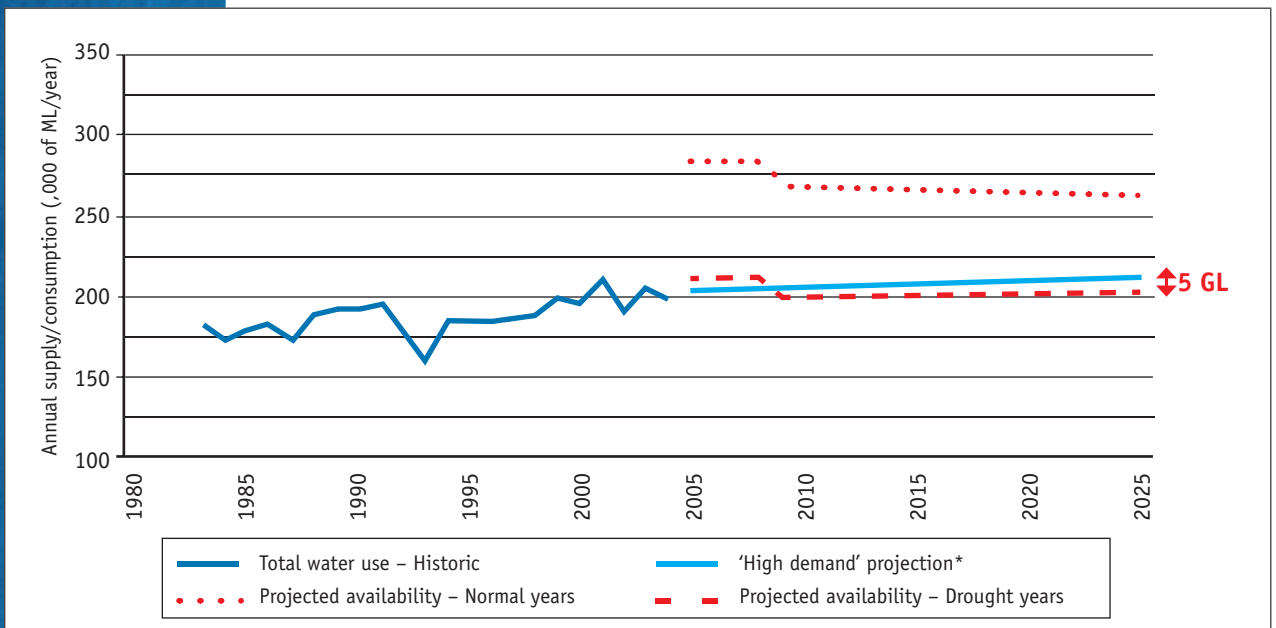
Strategy number	Strategy	Completion 2005-10	Completion 2010-15	Completion 2015-20	Completion 2020-25
Additional water supplies and fostering innovation					
Stormwater					
42	Commencing in July 2006, most new homes in SA will be required to have a rainwater tank plumbed into the house for some domestic uses. This should provide an additional 4,000 ML of water per year by 2025 and is likely to encourage the further uptake of rainwater tanks in existing developments.	Commence July 2006			
43	The SA Government will work with the Australian Goverment and other States and Territories to develop national guidelines for the use of stormwater.	2006			
44	The Urban Stormwater Initiative will progress policy issues that incorporate multiple objectives of stormwater management into decision-making. These include key issues of flood management, reuse, water quality and amenity. The policies are expected to make recommendations that would lead to improved viability of stormwater as a resource.				
45	Further research will be carried out by the SA Government together with the Natural Resources Management Boards on the potential for Aquifer Storage and Recovery (ASR) to provide additional storage capability for stormwater and recycled water in the Adelaide region.				
46	The SA Government will review environmental values under its water quality policy to enable ASR projects on the Adelaide Plains.	2007			
47	Water sensitive urban design principles will be incorporated into the Planning Strategy for South Australia and implemented by council development plans and other regulations with the aim of emphasising and integrating water quality, urban amenity and stormwater use with adequate flood mitigation.	2006			
48	Localised reuse of stormwater and/or recycled water, where practical and economic, will be considered in all new land divisions as part of water-sensitive urban development requirements.				
49	The SA Government will work with local councils to develop whole-of-catchment stormwater management plans.	Commence 2007			
50	Legal issues surrounding ownership and access rights to surface and groundwater resources will be reviewed to provide an appropriate level of security/certainty for potential stormwater users.	2008			
51	Responsibilities will be reviewed and clarified for various functions associated with managing stormwater (especially arterial drains) including provision of works, planning, education and regulation of water quality.	2005			
52	Projects aimed at using stormwater will be considered on their merits to ensure that there is sufficient benefit to the community to warrant the cost. Evaluation will be made easier over time as more research is carried out and better information on environmental and social benefits becomes available.				
Recycled water					
53	The Adelaide Coastal Waters Study will provide information on the extent to which the discharge from stormwater and from wastewater treatment plants is still affecting the marine environment in Gulf St Vincent. This may lead to additional interventions to reduce impacts.	2006			
54	National health guidelines for water reuse, including greywater, will be developed by the SA Government, in conjunction with the Australian Government and other States and Territories.	2006			
55	Further opportunities for large-scale recycled water projects including the expansion of existing schemes will be implemented where they are viable according to an economic, environmental and social impact assessment.	From 2005-06			
56	Localised reuse of recycled water and/or stormwater will be considered for new land divisions as part of water-sensitive urban development requirements.				
57	Regulations relating to sewer mining and greywater reuse systems will be reviewed to ensure that restrictions on reuse are justified by the public health and urban amenity criteria.	2007			

Strategy number	Strategy	Completion 2005-10	Completion 2010-15	Completion 2015-20	Completion 2020-25
Other opportunities for additional water supplies					
58	Water licences will be purchased in the lower Murray area as part of the strategy to protect the River Murray and the quality of our mains water supplies. This water will be used for social, environmental or economic purposes, particularly in regional South Australia.	Commenced			
59	The SA Government will develop a State policy towards desalination that addresses planning issues, access to saline water, disposal of brine and management of other environmental impacts.				
60	The SA Government will ensure that its long-term water infrastructure plans remain flexible enough to enable the integration of desalination plants as and when they become viable in the future.				
Fostering innovation					
61	The SA Government, in accordance with the National Water Initiative, will place importance on the proper evaluation of 'icon' developments in order to learn from them and develop new skills and policies and capabilities for future projects.	2006			
62	The SA Government will continue to support research and innovation, and will establish clear eligibility guidelines for non-Government parties to access assistance in establishing the feasibility of water projects and for trialling innovative water schemes or products.				
63	The SA Government will conduct a five-year rolling review of the Water Proofing Adelaide Strategy with a focus on changes in the environment, technology and knowledge that have occurred in the intervening period.				

The benefits for Adelaide

With support from the entire community, the Water Proofing Adelaide Strategy will provide sufficient mains water to meet Adelaide's needs, even in a drought year, well beyond 2025.

The chart below shows the impacts on the mains water system that can be achieved through the initiatives discussed within the Strategy. This is even allowing for increased population growth, the impacts of climate change on the Adelaide Hills catchments, and the return of environmental flows to waterways downstream of the Adelaide Hills reservoirs.



Projected supply and demand scenarios for mains water following implementation of both the State Strategic Plan and the Water Proofing Adelaide Strategy

* Prosperity through people; A population policy for SA 2004