FACT SHEET

21 Human Settlements

Water Consumption in Urban Settlements

Water consumption issues

Fresh water is one of the world's most valuable resources and is essential to support human life and the environment. South Australia is the driest state in the driest continent in the world. Therefore, we face lots of challenges in making sure we have enough water for all of our needs. This fact sheet focuses on potable (drinkable) water, water that has been treated and delivered via mains pipes to households and commercial enterprises.

Water supplied to the urban settlements of South Australia is extracted from the River Murray, surface water reservoirs (mostly in the Mount Lofty Ranges), groundwater in the south east, northern and western areas of the state, and more recently extracted from the sea.

South Australian's use approximately half of their mains treated water supply to maintain gardens. Improved watering practices could reduce this demand; however, alternative sources of water, like using urban run-off or treated wastewater, could provide a substitute for uses other than drinking. Every year around 110 gigalitres (1 gigalitre = 1 billion litres) of urban stormwater is sent to the sea, around the same amount of water that is piped from the River Murray to supplement Adelaide's water supplies.

> "Fresh water is one of the world's most valuable resources and is essential to support human life and the environment."

TRENDS

Water consumed per person in the Adelaide metropolitan area has remained **steady** since 1998.

Use of treated water for agricultural use has **increased** by 50% since 1998.

Use of treated water for industrial use has **increased** by 42% since 1998.

The quality of mains water supplied to Adelaide continues to comply with the national drinking water quality guidelines.

Re-use of treated mains water has **increased** from 7.6% in 1995, to 15% in 2002.

Water Consumption in Urban Settlements

What is the current water consumption situation?

95% of South Australians rely on mains water (tap water) as their main source of water. For drinking, 33% of South Australians drink water from rainwater tanks (three times the national average) and 16% use bottled water (more than double the national average). The Adelaide metropolitan area is dependent on the River Murray, but in 2003/2004 the flow of the River Murray water to South Australia is expected to be as low as 59% of what we currently receive due to the drought. This may have significant effects for all sectors of the community. In order to cope with this, the state government imposed water restrictions commencing 1st July 2003, with the aim of reducing our water consumption by 20%.

The South East and western (Eyre) areas of the state are almost entirely dependent upon groundwater sources. As from December 2002 water restrictions have been applied on the Eyre Peninsula. The Upper South East, northern Spencer Gulf, Mid North and Yorke Peninsula regions rely heavily on River Murray water.

Pressure indicators

Total mains water consumption

Around 65% of all mains water is supplied to households. A typical South Australian household uses approximately 50% of their mains water to irrigate the garden and in summer this may rise to as much as 80%.

Water consumption per person

Adelaide's per capita (person) water consumption is among the lowest when compared with other Australian capital cities, but is relatively high compared to world standards. The figures for per capita daily consumption have stayed quite steady, from 460 litres per day per person in 1997/1998, to 445 litres per day per person in 2001/2002.

Condition indicators

Water quality

Water quality is measured by a number of microbiological, physical and chemical indicators and assessed against the Australian Drinking Water Guidelines (ADWG) 2001. South Australia's water supplies undergo lots of sampling and monitoring and show that most indicators are within the limits of the national guidelines. The most common and widespread health risk is the presence of micro-organisms, like *E. coli, Cryptospoidium* and *Giardia*.

Mains water quality in some country areas is poorer than in the Adelaide metropolitan area; however, since 1997/1998 major treatment has led to better water quality for communities along the River Murray, the Adelaide Hills and on Kangaroo Island.

Freshwater algal blooms

Cyanobacteria or blue-green algae are naturally occurring organisms that can, under certain conditions, increase in numbers to produce a freshwater algal bloom. Some human activities, like farming with lots of fertilisers, produce high levels of nutrients in water, and can lead to algal blooms. Between 1997 and 2002, blue green algae were found in reservoirs that service the metropolitan area 621 times – most counts being levels below that of concern to human health.

Water Consumption in Urban Settlements

What is the current water consumption situation? (continued)

Response indicators

Wastewater re-use

In 2001/2002, Adelaide's four major metropolitan wastewater treatment plants (WWTPs) treated 91,000 megalitres of effluent – enough to fill 45,000 Olympic sized swimming pools! Around 15% of this treated wastewater was re-used, the rest was discharged to the sea. The re-use of treated wastewater from Adelaide metropolitan WWTPs has been slowly increasing from around 8% in 1995 to the current level of 15%. South Australia's country based WWTPs treated a total of 10,317 megalitres of effluent in 2001/2002. In total, around 15% was re-used, 57% discharged to sea and 28% discharged to inland rivers and streams.

> "... the state government imposed water restrictions commencing 1st July 2003, with the aim of reducing our water consumption by 20%."

Water Consumption in Urban Settlements

Taking action for water consumption in urban settlements

Think about all the ways in which you can reduce the amount of water that you use. Perhaps you could:

- take shorter showers
- install a half-flush in your toilet
- turn off the tap while cleaning your teeth
- fix all leaking taps around home and school
- talk to your friends and family about the need to conserve water.

Impacts of

of water consumption in urban settlements

Atmosphere

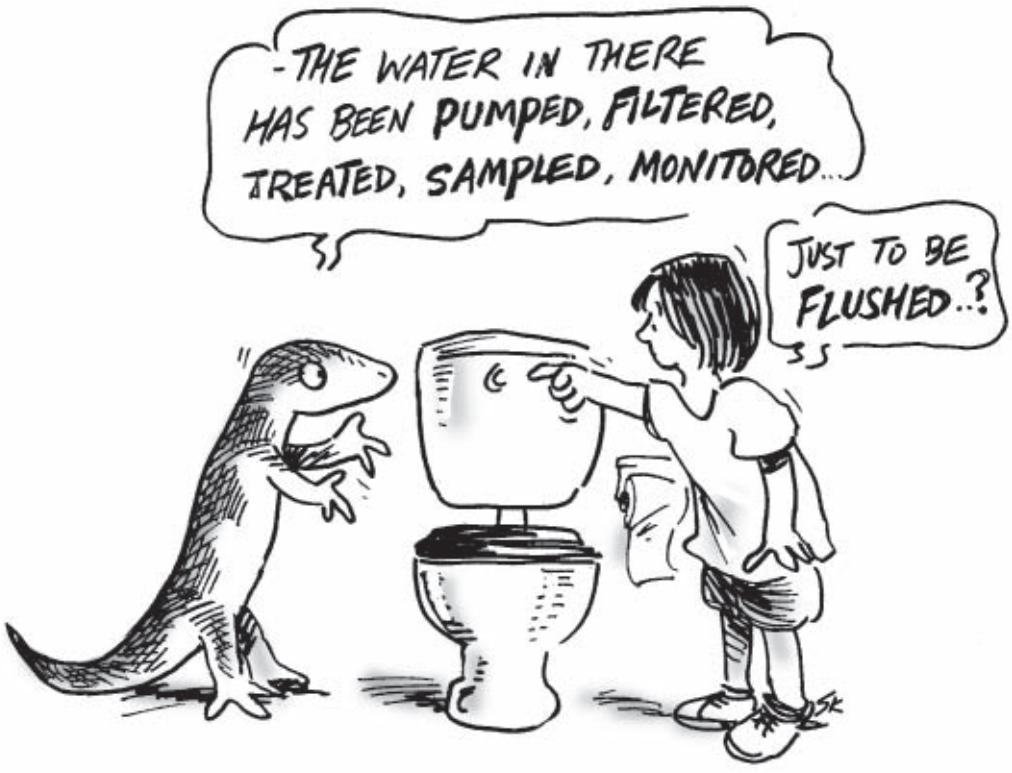
Increasing demands for water means that we will need to pump more water and therefore use energy. Traditional forms of energy production contribute to the greenhouse effect and air pollution.

Inland Waters

Most of the water households use ends up in stormwater drains or sewage systems. In turn, our stormwater ends up in rivers, streams and wetlands and may lead to pollution.

Coasts and the Sea

Most stormwater ends up being discharged into the sea causing pollution and impacting on fish stocks important to fisheries.



Water Consumption in Urban Settlements

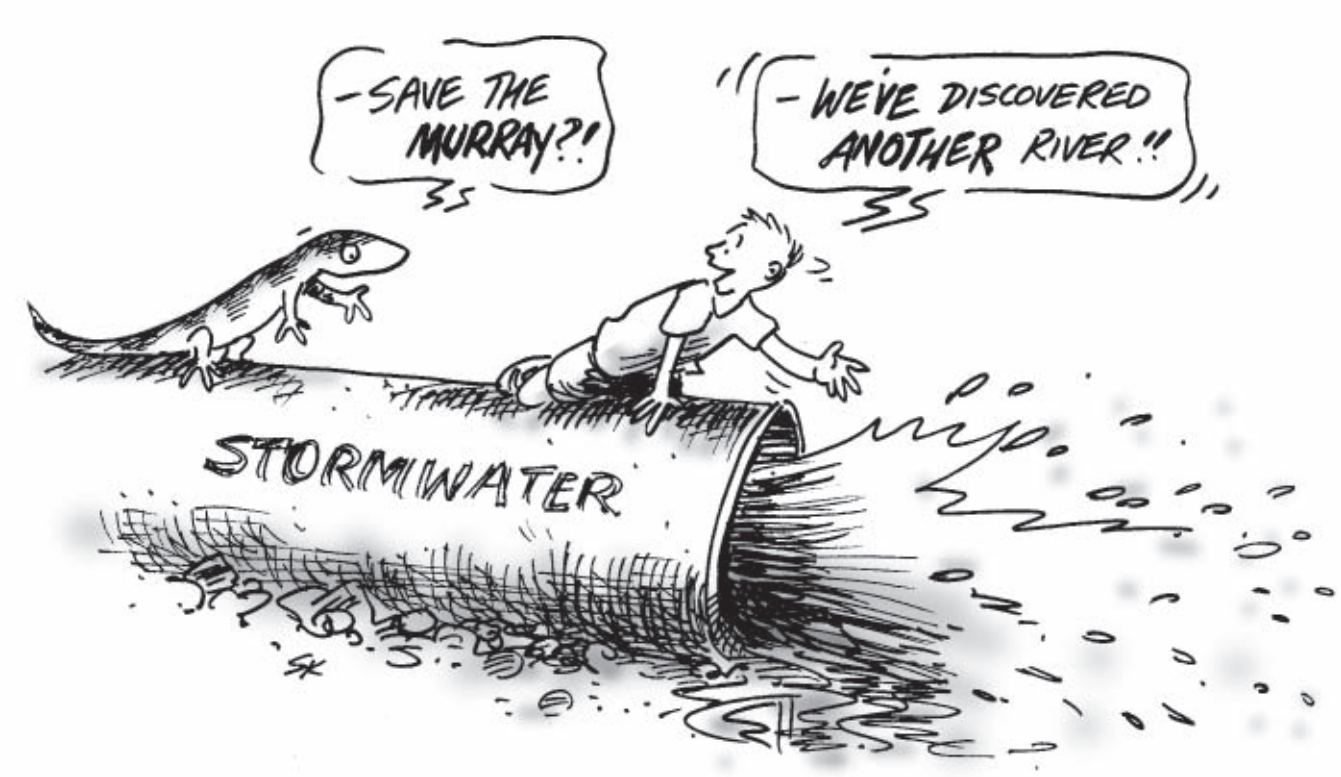
Attention!!

Re-using our stormwater?

Most of the water used by households ends up in stormwater drains or sewage systems, which eventually ends up in the sea. South Australians produce 130 gigalitres of stormwater each year, and 85% of this is generated in Adelaide. Most of this water is sent out to sea, with 20 gigalitres, or 15%, currently being re-used. This means that we are sending out to sea around the same amount of water we are taking from the River Murray for drinking water. Imagine how much we could relieve the pressure on the River Murray if we could re-use our water, rather than waste it!

One of the problems with re-using our stormwater is the technical and economical barriers to storing the water for later use. South Australia is an international leader in the use of Aquifer Storage and Recovery (ASR) technology and has been used since the early 1990s to manage excess stormwater. ASR involves capturing large amounts of stormwater and storing it in underground aquifers. ASR technology may be able to help us to re-use more of our water and hence put less pressure on other water sources like the River Murray. More opportunities are needed to make ASR cost effective for supplying water for irrigation and industry.

> “Imagine how much we could relieve the pressure on the River Murray if we could re-use our water, rather than waste it!”



Water Consumption in Urban Settlements

Research Ideas

about water consumption in urban settlements

1 **What is meant by water consumption?**

2 **What is meant by wastewater? How is it produced?**

3 **How does water consumption in urban settlements impact on the environment in your community, South Australia, Australia and globally?**

4 **What does the State of the Environment report tell us about water consumption in urban settlements in South Australia?**

5 **What might happen in the future if things continue as they are?**

6 **What are government, business and industry doing to address water consumption issues?**

7 **What can we do individually, or in communities, to reduce our consumption of water?**

RESOURCES

For more detailed information on the issue and actions you can take see the State of the Environment Report for South Australia 2003. This is available at: www.environment.sa.gov.au/soe2003

This fact sheet is part of a set of 23 fact sheets about the key environmental issues identified in the *State of the Environment report 2003,* produced for the Environment Reporting Education Resource. You can access the fact sheets and learn more about taking action for the environment at the Education Resource website: www.environment.sa.gov.au/reporting/education. For more information call the Environmental Education Unit of the Department for Environment and Heritage (08) 8226 4466.

Government of South Australia

department for environment and heritage

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