Fact Sheet #2 : Water – essential to life

The impacts of a growing population and a variable and changing climate are putting pressure on our water supplies. This means we all have a role to play to ensure a sustainable water future for greater Sydney.

A broad range of initiatives are now in place to reduce demand for water, to increase supply and recycling, and to protect and restore catchment health.

The drinking water for Sydney, Blue Mountains and Wollongong comes from a catchment area of over 16,000 square kilometres where rain collected by the natural landscape runs in to creeks and rivers, and then flows into a network of 11 lakes and dams where the water is stored for use as drinking water. The Sydney Catchment Authority is responsible for maintaining the health of these catchments and the quality of drinking water. http://sca.nsw.gov.au

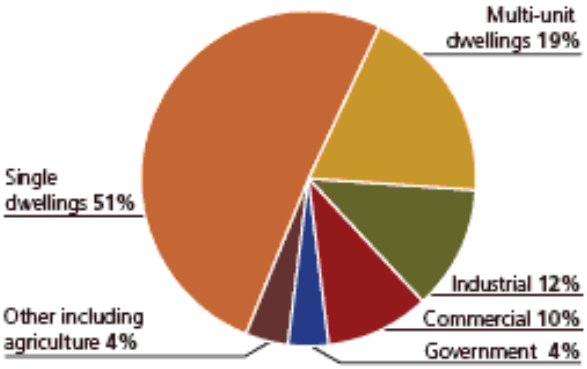
Sydney stores more water per head of population than many other cities in the world. These other cities often draw heavily on other sources of supply not available to Sydney, notably more reliable rainfall, groundwater and snow-melt water. Sydney's current storage system could provide Sydney with four years of supply under zero inflow conditions. Compare this with Tokyo, which has six weeks of zero inflow supply, or London with 10 weeks. Four years of zero inflow, of course, has never occurred.

In 2004, *Meeting the challenges – Securing Sydney's water future* was released by the NSW Government. The plan – covering the next 25 years – outlined the Government's actions to secure the future water supply for Sydney. Actions proposed included: accessing water stored deep in dams; transferring water from the Shoalhaven River during high flow periods; large scale recycling programs for new land release areas; and desalination.

Recycling, use of groundwater and desalination have the (theoretical) advantage of being able to be turned on and off as needed (although contracts often mean this option is prohibitively expensive!), but all have a number of disadvantages including being energy intensive and possibly posing threats to our environment.

The controversial desalination plant at Kurnell is expected to open at the end of 2009, producing 500 million litres/day of drinking quality water. The plant will use reverse osmosis filtration membranes to remove salt from seawater and will be powered using 100 percent renewable energy. The renewable energy will be supplied to the national power grid from the Capitol Wind Farm at Bungendore, NSW.

The 4.3 million people in Sydney "use" 1.3 billion litres of drinking quality water a day. The volume of water actually consumed or used in food preparation is about 10%. Approximately 70 per cent of the water piped into Sydney becomes waste water (sewer) which is minimally treated and discharged to the ocean. Only about two per cent is recycled.



The residential sector accounts for the bulk of the drinking water consumed in Sydney (70%). By contrast, the industrial sector uses 12%, the commercial sector 10% and Government 4%. Agricultural use of drinking water is low at about 2%. Other uses comprise 2%.

Dams and reservoirs affect the natural flow of water downstream. The SCA provides water to downstream rivers through environmental flows – water released from the storages to help restore processes and biodiversity of water dependent ecosystems. These flows represent around two to three percent of the total water we use each day.

Clearly, whether the water we use comes from dams, recycling programs, or desalination, there are associated negative environmental impacts.

As responsible citizens then, we need to continue to do everything we can to reduce our individual water usage and hence lessen demand for these less attractive sources of potable water.

Compared to other parts of Australia, however, Sydney is awash in water. Australia is a dry country with limited water resources. The major water resources are in northern Australia and Tasmania, whereas most of our agriculture and people are in south-eastern mainland Australia.
http://www.austmus.gov.au/factSheets/water_use.htm

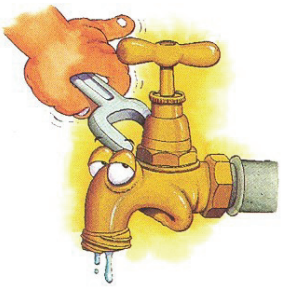
The largest consumers of water are meat and wool. To produce a kilo of beef requires 50,000 to 100,000 litres of water, while a kilo of clean wool requires a staggering 170,000 litres. Some of our crops also use a lot of water. For example, a kilo of wheat uses 715 to 750 litres of water; a kilo of maize uses 540 to 630 litres; rice uses 1550 to 2000 litres and soybeans require 1650 to 2200 litres to yield a kilo of dry beans.

Furthermore, many crops are grown in dry areas where up to half the available water evaporates from the soil surface or seeps down too low into the ground for the plant roots to reach it. Irrigation water is often delivered through sprinkler systems which allow evaporation to take place before the water even reaches the soil.

What can you do…

At home?

- ✓ **Observe *all* water restrictions!**
  http://www.sydneywater.com.au/Savingwater/WaterRestrictions/



- ✓ Sydney Water provide the following water saving programs:
  - Toilet Replacement Service – Replace your single flush with a 4-star, water efficient, dual flush toilet. Save about 25,000 litres every year and up to $200.
  - Get a free water saving kit – And save around nine buckets of water a day. Register online for your free kit. http://www.sydneywater.com.au/SavingWater/WaterRestrictions/DoItYourselfKit.cfm
  - WaterFix your home – From only $22 a qualified plumber will visit your home to install water saving devices. Call the WaterFix hotline on 1800 995 886.
  - Washing machine rebate – You can get a $150 rebate from Sydney Water to buy a water efficient washing machine. http://www.sydneywater.com.au/Savingwater/InYourHome/WashingMachineRebate/

- ✓ Rebates are available from Sydney Water AND from Lane Cove council for installation of rainwater tanks. The amount of the rebates are dependent on tank capacity and whether or not they are connected to toilets and/or laundry.
  http://www.lanecove.nsw.gov.au/rainwatertank
  http://www.sydneywater.com.au/savingwater/InYourGarden/RainwaterTanks/
- ✓ Keep a container of drinking water in the fridge so that you don't run water down the plughole waiting for the water to cool.
- ✓ Thaw frozen foods in the fridge or microwave rather than placing them under running water.
- ✓ Wash vegetables and rinsing dishes in a plugged sink or basin – not under a running tap.
- ✓ Microwave, steam or use a pressure cooker to cook vegetables, to retain more flavour and use less water than traditional boiling.
- ✓ Wait for a full load of washing before reaching for the detergent as every load less saves 17 buckets of water.

- ✓ Put a plug in the sink when shaving rather than rinsing your razor under running water.

- ✓ Take shorter showers. Every minute less in the shower saves one bucket of water.
- ✓ Consider installing a AAA rated water saving showerhead and save on water and energy costs.
- ✓ Use the half flush and save up to four buckets of water per day.
- ✓ Check for leaks in your toilet by adding food dye to the cistern. If colour appears in the bowl within half an hour it is time to do some DIY or call a qualified plumber.

- ✓ Before buying plants log onto the plant selector at www.sydneywater.com.au to find out which plants are most compatible with the climate and soil in your area.
- ✓ Group plants with similar watering needs together as this helps ensure they all receive the correct amount of water.
- ✓ Use watering cans or trigger nozzles on hoses so that you water only those areas that need it.
- ✓ Water the base of plants, not the leaves. Check how quickly the soil absorbs the water before it runs off.
- ✓ Check if your lawn needs to be watered by walking on it. If an impression of your foot remains it needs water.
- ✓ Applying a layer of mulch at a depth of 7 – 10 cm around plants will reduce water evaporation by up to 70 per cent.
- ✓ Wash your car on the lawn so that you water and fertilise the grass at the same time. Car shampoos use phosphates that are similar to many fertilisers.
- ✓ Always use a broom or rake rather than a hose to clear driveways and pathways of debris.
- ✓ Add water crystals to soil to enhance water retention by up to 40 per cent.
- ✓ Remove weeds as soon as they spring up – they not only shelter pests and diseases but are notorious water thieves too.

At work and in your community?

- ✓ Sydney Water has a pilot program for small to medium sized businesses using between 20 and 80 kilolitres of water a day. Sydney water will refund half the cost of: retrofitting existing equipment; buying and installing new equipment to replace existing equipment; changing business operations. http://www.sydneywater.com.au

Virtual water

The virtual water content of a product is the volume of water required to produce it. The virtual water content of products increases when additional resources are required for their production such as processing, packaging and transport.

Product	**Virtual water content (litres)**
1 glass of beer (250 ml)	75
1 glass of milk (200 ml)	200
1 cup of coffee (125 ml)	140
1 cup of tea (250 ml)	35
1 slice of bread (30g)	40
1 slice of bread (30g) with cheese (10 g)	90
1 potato (100 g)	25
1 apple (100 g)	70
1 cotton T-shirt (250 g)	2000
1 sheet of A4 paper (80 gsm)	10
1 glass of wine (125 ml)	120
1 glass of apple juice (200 ml)	190
1 glass of orange juice (200 ml)	170
1 bag of potato crisps (200 g)	185
1 egg (40 g)	135
1 hamburger (150 g)	2400
1 tomato (70 g)	13
1 orange (100 g)	50
1 pair of shoes (bovine leather)	8000
1 microchip (2 g)	32

Global average virtual water content of some selected products, per unit of product (from Hoekstra and Chapagain, 2007). For more information about virtual water see http://www.connectedwaters.unsw.edu.au