Water Use

Australia, the most arid inhabited continent, can provide only a limited amount of fresh water. Available fresh water resources are expected to decline with changes to rainfall patterns accompanying global climate change. As our population grows, so too does the pressure on water use. To ensure future supplies of fresh, clean water we must use it more carefully.

Good building design can greatly reduce the amount of water we use and the degree of contamination we cause. The following fact sheets show you how to use water in a sustainable way:

> **7.2 Reducing Water Demand.**

> **7.3 Rainwater.**

> **7.4 Wastewater Re-use.**

> **7.5 Stormwater.**

> **7.6 Outdoor Water Use.**

> **7.7 Low Impact Toilets.**

> **7.8 Water Case Studies.**

The application of each of these will depend on whether you live in the city or the country, in the tropics or the warm temperate south. Examine the options presented and decide which design solutions would improve your quality of life and reduce your impact on the environment.

7.2 REDUCING WATER DEMAND

Simple changes can reduce the pressure on reticulated water supplies and reduce your water bills. This fact sheet shows you how.

Choose water efficient products and appliances. Australia now has a Water Efficiency Labelling and Standards (WELS) Scheme, which enables consumers to see the water efficiency rating of new taps, showers, toilets, urinals, clothes washing machines and dishwashers. The blue 6-star arch label shows the relative efficiency and a water consumption or flow figure. The more stars, the more water efficient.

Taps, toilets and showers are key areas where water consumption can be reduced by installing water efficient products.

Fit water efficient showerheads.

Replace your single flush toilet with a WELS 3 or 4 Star rated dual flush model. The 4 Star models are in the 4.5/3 litre category, while 3 Star is the 6/3 litre category. All WELS labelled toilets have an average flush of 5.5L or less.

Fix leaking taps.

Install appropriate taps. Mixer taps in showers can reduce the potential for scalding and save large quantities of hot water. Single lever flick mixer models of mixer taps over basins and sinks, however, waste hot water because they tend to be left in the middle position. Mixer taps with separate controls for hot and cold water are preferable in these locations.

The environmental benefits include:

> Lower water extraction from the environment.

> Decreased sewage volume.

> Reduced CO_2 emissions.

7.3 RAINWATER

Rainwater tanks can provide a useful sole or supplementary water supply in most regions of Australia. These systems are especially recommended in areas where water supplies are limited.

Rainwater can be used for toilet flushing, laundries or for watering the garden. Drinking rainwater is not advised in most areas of Australia with potable supplies. If drinking water is being supplied by the rain tank, the system must be adequately maintained and health guidelines followed.

This fact sheet provides more detail on how to harness rainwater.

7.4 WASTEWATER RE-USE

With appropriate treatment, and if local regulations allow, wastewater can be used to flush toilets, water the garden and even to wash clothes.

Different types of wastewater produced in a household need to be treated differently before they can be re-used.

Greywater is wastewater from non-toilet fixtures such as showers, basins and taps which does not contain human excreta.

On-site sewage treatment system.

Blackwater is wastewater containing human excreta.

Greywater from bathrooms and laundry (but not the kitchen) is the easiest to treat for re-use. Most States permit greywater re-use outdoors as well as indoors for toilet flushing and laundry after appropriate treatment.

Re-use of wastewater containing blackwater may be permissible only outdoors for subsurface irrigation after suitable on-site treatment.

The Wastewater Re-use fact sheet discusses options for wastewater treatment and re-use, including:

> Advantages and disadvantages of wastewater treatment and re-use.

> Estimating wastewater volume.

> Common wastewater system types.

> Reusing wastewater indoors.

> Reusing wastewater outdoors.

7.5 STORMWATER

Stormwater is the term given to pure rainwater, plus anything the flowing rainwater carries along with it. This fact sheet provides information on how to manage stormwater.

Avoid cut and fill on your block when preparing the building foundations. Attempt to maintain the existing topography and drainage pattern. If you do have to cut and fill, stabilise the soil and revegetate as soon as possible.

Retain vegetation, particularly deep-rooted trees that can lower the water table, bind the soil, filter nutrients, decrease run-off velocities, capture sediment and reduce the potential for dryland salinity.

Retain stormwater on your block with permeable paving, pebble paths, infiltration trenches, soakwells, lawn, garden areas and swales.

Minimise impervious surfaces such as paved areas, roofs and concrete driveways.

7.6 OUTDOOR WATER USE

Up to 60 per cent of household water is used outdoors. Using water conservation techniques in the garden will ultimately save you money, time and effort. This fact sheet shows you how.

Minimise lawn areas. In most gardens, lawns consume up to 90 per cent of outdoor water and most of the energy used outdoors. To reduce outdoor water use replace lawns with groundcover plants or mulched garden beds.

Mulching around plants conserves water by preventing evaporation and reducing run-off.

Plant drought tolerant species. Australian natives, succulents, cacti, olive trees and some exotic ornamentals are suitable.

Improve soil. The addition of organic matter, gypsum, sand and other compounds can improve soil condition, water retention and drainage. Hardy, deep-rooted plants can help break up poor soils.

7.7 LOW IMPACT TOILETS

Low impact or low water toilets use no or minimal amounts of water to treat or transport human excreta. If appropriately designed and operated they conserve precious water resources and avoid disposing of effluent and pollutants into waterways and the wider environment.

The best way to simplify wastewater treatment is to avoid mixing it with human excreta. Blackwater is the most difficult form of wastewater to treat due to the presence of pathogens.

The fact sheet describes some common types of low impact toilets and provides advice on choosing these toilets, managing a waterless toilet and how to handle the end products.

7.8 WATER CASE STUDIES

Three case studies show how many of the systems and strategies discussed in the fact sheets have been applied.

ADDITIONAL READING

Contact your State / Territory government or local council for further information on using water wisely, including what rebates are available.
www.gov.au

Water Rating
www.waterrating.gov.au

Water Sensitive Urban Design
www.wsud.org/literature.htm

Windust A (2003), *Waterwise House and Garden – A Guide for Sustainable Living*, Landlinks Press, Victoria.

Woodcock, S. & White, S. (2001), *Sustainable Urban Water Use – An Update Environment Design Guide* General Issues GEN 41 November, RAIA, Canberra,

This vertical greywater filtering system treats water to be re-used in the toilet, washing machine and garden.