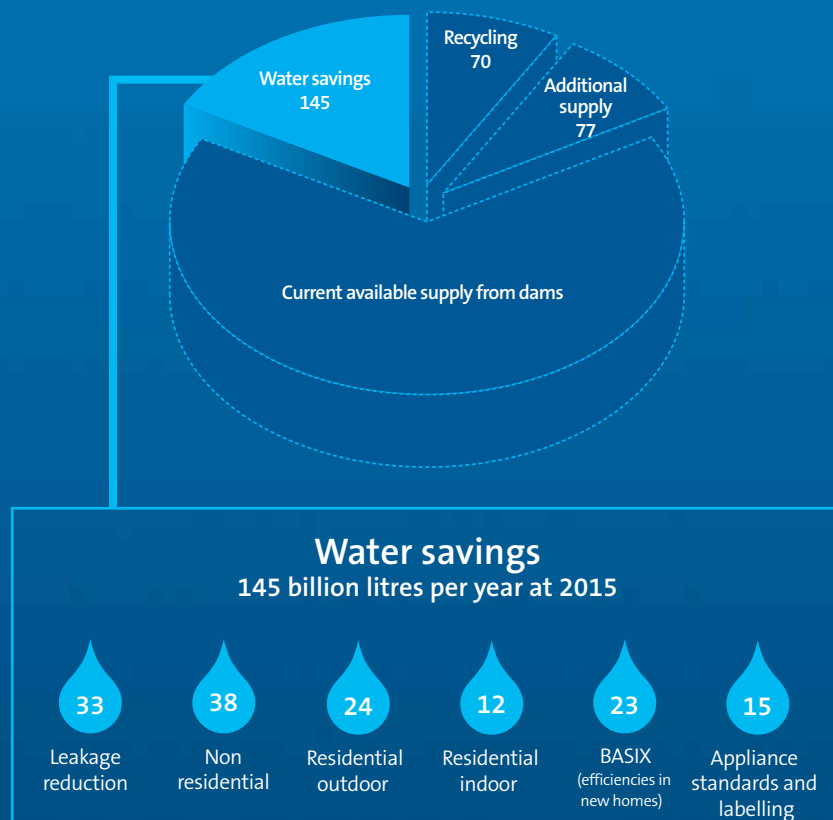


6. Reducing demand



What this chapter is about

Reducing demand means any change in behaviour, water using equipment or process that helps to minimise water wastage and improve water use efficiency. Demand reduction or water saving measures range from simple actions such as turning off a tap while brushing your teeth, or installing a 3-star or AAA rated shower head, to

better purchasing policies across government agencies and multi million dollar process changes by industry. In some cases, saving water may involve finding a way of achieving the same ends without using any water at all, such as sweeping with a broom instead of using a hose.



This chapter details the range of existing, new and proposed water saving measures and other initiatives aimed at reducing the amount of water used by Sydney's households, businesses and government. By 2015 these measures are expected to save around 145 billion litres of water per year.

What has been done to save water

A broad range of programs, funds and initiatives are in place to help government, businesses and households to save water. These include:

- The four-year \$120 million Water Savings Fund
- Development of Water Savings Action Plans by high water using industry, government agencies and local councils
- Sydney Water's Leak Reduction Program
- Water price reforms
- The Building Sustainability Index (BASIX)
- The Water Efficiency Labelling and Standards Scheme (WELS) and Smart Approved Water Mark Scheme
- Rainwater tank rebates
- The WaterFix Program for water efficient fittings, and the Do-It-Yourself Water Saving Kit
- The Every Drop Counts (EDC) Business Program
- A range of education programs providing resources and information for the community and other users
- The NABERS OFFICE Water rating tool

What will be done next

- The Water Savings Fund will continue, with an extra \$10 million available in 2006
- Water Savings Action Plans will have been completed by businesses and government by mid 2006 for implementation over the next four years
- A \$150 washing machine rebate will be provided to Sydney residents who purchase an efficient washing machine until February 2007
- WELS will become mandatory from July 2006 and NSW will lobby for the national introduction of minimum standards
- BASIX will be rolled out for alterations and additions from 1 July 2006
- The NABERS HOME Water rating tool will be released in mid 2006
- Under a newly expanded WaterFix Program an additional 50,000 Department of Housing dwellings will have water efficient fittings installed, bringing the total number of houses serviced across Sydney to 550,000 by 2008
- A new program for leakage reduction in schools will be piloted
- New reasonable use guidelines for river and groundwater use by households will be released
- Further analysis of demand trends and ongoing monitoring of population growth and demand will be undertaken
- The potential impacts of climate change on water demand will be analysed
- Further measures to improve government water efficiency will be undertaken
- Rainwater tank rebates for households will continue to be offered until July 2008
- The Every Drop Counts Business Program will continue to help business and government to make significant water savings
- Sydney Water's Leak Reduction Program will continue
- An enhanced metropolitan water education program will increase awareness of the need for continued water saving efforts.

6.1 Introduction

On average over the past 10 years around 600 billion litres of drinking water per year has been drawn from Sydney's water storages to supply the community, businesses, farms and industry through the drinking water system. In addition, farmers also sourced an estimated 110 billion litres per year directly from rivers and farm dams.

Significant progress has been made in improving the way in which this water is used, but there are many further opportunities to improve water use efficiency and reduce water wastage.

This chapter provides information on the wide range of programs both in place and planned that help to reduce water use while at the same time maintaining or improving the benefits that water provides. Sydney has a comprehensive and coordinated range of water saving initiatives tailored to all major water users, from households to big industry, agriculture and government. Combined, these make up the largest demand reduction program in Australia and one of the most comprehensive and diverse urban water saving efforts internationally.

Saving water by minimising waste and improving efficiency is an essential component of a balanced and diverse strategy to meet Sydney's water needs, and is more cost effective than most other options to help balance supply and demand for water. Such programs can also play a useful role in

mitigating the impacts of drought by reducing reliance on rain-fed storages in times of scarcity, and can deliver positive environmental benefits, such as reducing the amount of energy used for hot water systems and for pumping water through water pipes to deliver it to homes and businesses.

Since 1999, the efforts of all Sydneysiders have saved a total of over 90 billion litres of water, and annualised savings in 2005 are estimated to have been about 41 billion litres. These savings are in addition to those from drought restrictions, and the net effect is that although there are now 950,000 extra people in Sydney, total consumption is the same as 25 years ago.

Several new water saving measures have been developed since the release of the *2004 Metropolitan Water Plan*. In total, the existing and enhanced suite of programs and policies outlined in this *Metropolitan Water Plan* are expected to save around 145 billion litres of water per year by 2015.

The initiatives apply across a number of sectors. The measures in this chapter are presented in the following order:

- cross sectoral
- government
- business
- agriculture
- households.

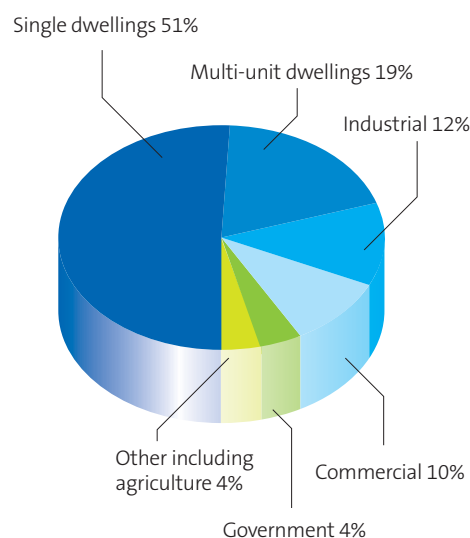
6.1.1 Understanding the demand for water

Estimating the future demand for water is important for identifying where water saving programs need to be targeted and for planning Sydney's future water systems. The independent expert analysis undertaken for this *Metropolitan Water Plan* has utilised two components to understanding the future demand for water:

1. The 'base case' demand, also called 'reference case' demand. This is the underlying demand for water and includes all water used by households, businesses and government but does not include the impact of water saving measures, recycling schemes and restrictions.
2. The impact of water saving measures and recycling schemes which substitute water from storages with an alternate source of water or with a technology or approach that requires less water.

The projected demand from water storages has been calculated by subtracting the savings which are achieved through demand reduction measures from the base case demand. From a modelling perspective, it is currently easier to model the two components separately, and then to combine them, than to model the net trend directly.

Drinking water consumption by sector



The independent consultants have advised that accurately estimating either of these two individual components is difficult.

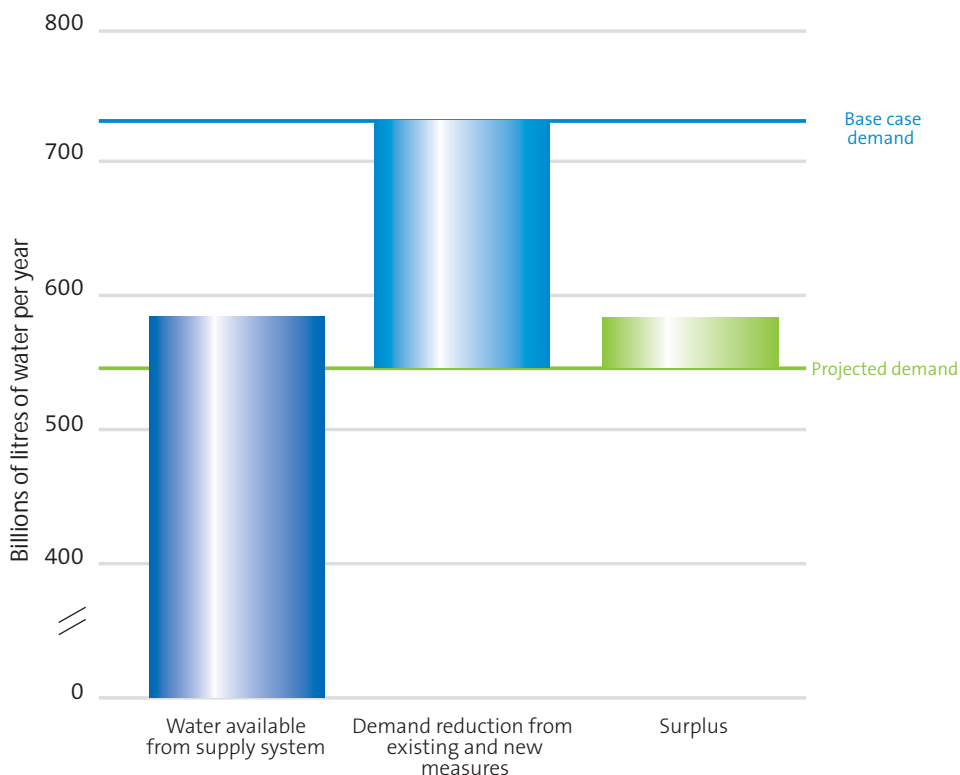
The current approach to calculating the total future demand for water in Sydney is to estimate the water demand per capita per day and multiply this by the projected population to give the total demand. The 2004 Metropolitan Water Plan used a per capita demand estimate for the base case of 426 litres per day. This estimate is considered conservative (in that it is likely to prove to be too high) and does not rely on analysis of water end-uses and the impact of urban consolidation in the future.

The conservative figure of 426 litres per capita per day has again been used in analysis for this 2006 Plan.

The net per capita consumption trends that will emerge following the lifting of drought restrictions are likely to be more useful for informing adaptive management decisions than the individual trends of base case demand and water savings. At the same time, improving understanding of trends in demand will prove valuable in refining water saving measures further.

To ensure that the best possible information is being used in future revisions of the Metropolitan Water Plan, underlying demand trends will be further analysed and monitoring of population growth and net per capita consumption will continue.

Supply-demand balance for 2015



The combination of the Water Savings Fund, Water Savings Action Plans and the Every Drop Counts Business Program is projected to save around 36.3 billion litres of drinking water each year, by 2015.

6.2 Cross sectoral water saving initiatives

Many water saving initiatives apply across business, government and households. This section contains information on these initiatives, including the Water Savings Fund and Water Savings Action Plans, the Every Drop Counts Business Program (EDC), Sydney Water's Leak Reduction Program, water pricing reforms and community education programs. Further information on measures specific to government, business, agriculture and householders can be found in Sections 6.3 to 6.6.

6.2.1 Water Savings Fund

The Water Savings Fund was established in 2005 under the *Energy and Utilities Administration Act 1987* to provide \$30 million per year over four years to deliver significant water savings across Sydney, the Blue Mountains and Illawarra through water conservation and recycling.

The *2006 Progress Report* announced an additional \$10 million for the Fund in 2006, leading to further water savings of around 3.4 billion litres per year by 2015.

The Fund is an overarching support program with several components tailored to areas of need. Funding is directly allocated to several initiatives, including WaterFix for households, a \$22 offer to householders to install water saving devices and check for minor leaks, and rainwater tank rebates for households and schools (see later in this chapter). It also has a contestable component where businesses, councils and NSW Government agencies can apply for funding to support water saving initiatives.

Contestable Water Savings Fund


The contestable component of the Water Savings Fund has been developed to:

- stimulate investment in innovative measures to save and recycle water
- save significant volumes of drinking water across Sydney
- increase public and industry awareness of the importance of saving water and the financial and resource savings that can be made.

The Fund aims to support projects which will achieve the greatest possible savings and which would not be likely to proceed without financial support. The first round of the Water Savings Fund opened in late 2005 and attracted more than 70 applications. This is a significant response and shows a high level of commitment and innovation from the business and government sectors, and a strong desire to improve water management.

In February 2006, offers totalling more than \$9.2 million were made to 27 projects. Details of the seven water use efficiency projects are provided in section 6.4. See Chapter 5 for information on the recycling projects funded under the program. The second round was opened in March, with grants to be announced in the coming months.

Two to three funding rounds will be held each year, involving a public call for applications.

 Further information on the Water Savings Fund is available at: www.deus.nsw.gov.au/waterandenergysavings



6.2.2 Water Savings Action Plans

In 2005, a number of changes were made to the *Energy and Utilities Administration Act 1987* to require large water users to prepare Water Savings Action Plans. The aim of these changes is to encourage managers of high water using organisations in business and government to gain better knowledge of how much water is being used in their operations, and the real financial savings that can be made through water savings. This initiative is the first of its kind in Australia.


A total of 237 business and 39 government sites using more than 50 million litres of water per year as well as all 44 councils in Sydney are required to prepare Water Savings Action Plans by the end of March 2006. Owing to the increased complexity in their operations, health authorities must complete their Plans by 30 June 2006.

Water has a low cost relative to other components in the running of an organisation, and is often overlooked as an area where savings can be made. However, once Water Savings Action Plans are developed, it is expected that many businesses will recognise the financial gains that can be made and will voluntarily implement the cost effective measures over the next four years.

Organisations can also apply for assistance under the Water Savings Fund (see section 6.2.1) for any measures identified in Plans which are unlikely to proceed without financial support. The Department of Energy, Utilities and Sustainability will provide oversight and encourage businesses to implement their Plans.

Implementation of the measures identified in the Plans is not presently mandatory, however the Government expects that water users will implement actions in order to realise water and cost savings and contribute to a more sustainable water system. Under the Act, the Minister for Water Utilities has the power to mandate implementation of the Plans if necessary. As part of the ongoing monitoring of the *Metropolitan Water Plan*, consideration may be given in future to using this power to encourage further water savings.

It is expected that implementation of each Water Savings Action Plan will provide up to a 20% saving in the organisation's water use.

 Further information on Water Savings Action Plans is available at:
www.deus.nsw.gov.au/waterandenergysavings

6.2.3 Every Drop Counts Business Program

The Every Drop Counts (EDC) Business Program has been running since 2001 and targets high water users in the manufacturing, commercial, hospitality, education and government sectors. Through this program, individual organisations are assisted and encouraged to systematically manage their water use as part of normal operational activities. The program helps businesses to get the most out of the water they buy and achieve demand reductions that can be sustained over the long term.

The innovative EDC approach aims to integrate water management with existing operational and environmental management systems. The program consists of the following elements:


- co-operative partnerships
- identification of management barriers
- identification of technical projects
- employee awareness
- corporate citizenship
- financial assistance to program participants
- development of Best Practice Guidelines.

By the end of 2005, 304 organisations were EDC partners, and water savings attributable to the Program were estimated to be approximately 7.3 billion litres per year.

Businesses are able to incorporate work they have undertaken in the EDC Program to partially or wholly fulfil their requirements to prepare Water Savings Action Plans (see section 6.2.2). Water saving measures identified by businesses through the EDC program may be eligible for financial support through the Water Savings Fund (see section 6.2.1), if they meet the selection criteria.



Government and business case studies from the Every Drop Counts Program can be found in Sections 6.3 and 6.4 respectively.

 Further information is available at:
www.sydneywater.com.au/SavingWater/InYourBusiness/EDCBusinessProgram.cfm



The Leak Reduction Program is projected to save around 33.5 billion litres of drinking water each year, by 2015.

6.2.4 Sydney Water's Leak Reduction Program

Sydney has nearly 21,000 kilometres of pipes which carry water to households, businesses and government across Sydney, the Illawarra and the Blue Mountains. The 2004-05 estimate of leakage was 10% of the total water supplied. This figure compares favourably to international leakage rates, with only a few countries such as Singapore and Germany achieving lower rates. Sydney Water has the largest and most comprehensive program in Australia to reduce leakage from its system. Even so, detection and repair work is being increased to reduce leakage still further.

Sydney Water's Leak Reduction Program involves five activities:

- Active leakage detection, where the system is acoustically scanned for leaks. Around 18,000 kilometres of mains is being scoured for hidden leaks each year.
- Improving the speed and quality of leak repairs, to reduce the amount of water lost from each leak and ensure that it does not occur again.
- Adjusting system pressures to reduce high pressure areas which can cause leaks and damage household fittings.
- Improved flow metering to better identify where leaks may be occurring.
- Water main renewals to ensure old pipes are replaced before they become a problem. Nearly 100 kilometres of mains will be replaced each year.

Over the next four years, over \$400 million will be invested in these activities, including nearly \$100 million in 2005-06.

It is estimated that nearly 17 billion litres of water per year is presently saved, and as the program continues, it is estimated that it will save around 33.5 billion litres per year by 2015.

6.2.5 Water pricing reforms

The price of water and the structure of water bills can be used to send clear signals about the importance of using water efficiently. Historically, water charges were based on property values, not on the amount of water actually used. The introduction of 'user pays' pricing in the early 1990s sent signals directly to customers about the cost of consuming water and contributed to a significant reduction in per capita demand. Since then, further reforms have continued to promote more efficient and sustainable water use.

The Independent Pricing and Regulatory Tribunal (IPART) regulates the price that customers pay for water in greater Sydney. In 2004, IPART conducted a comprehensive review of the range of price structures that could reduce demand for water in the Sydney basin. In particular, the Tribunal considered the benefits of a two-tier price structure whereby households that use more than a specified volume are charged at a higher rate for consumption in excess of that volume. A two-tier price structure – also known as an 'inclining block tariff' – encourages water conservation, particularly with respect to 'discretionary' or non-essential water use (such as over-watering gardens).

IPART has set water prices for the period from October 2005 to June 2009. Price structures have also changed in order to encourage water conservation and make a positive contribution to the supply and demand balance over time. Water usage charges are now higher than before and will rise over the next four years, while fixed charges will fall over the same period.

Average annual demand in the residential sector is 250,000 litres per household per year – or around 62,500 litres per quarter.

Water pricing reforms to 2009

Under the new water price structure, residential customers in single dwellings who use less than 100,000 litres of water per quarter (roughly 1,096 litres per day) will pay \$1.20 per 1,000 litres, rising to \$1.31 (in 2005-06 dollars) per 1,000 litres in 2009. Using more than 100,000 litres per quarter will cost \$1.48 for every 1,000 litres used above the threshold, rising to \$1.85 (in 2005-06 dollars) per 1,000 litres by 2009.

The new price and tariff structures are expected to reinforce savings achieved through a range of other programs. To reduce the impact of higher prices, households can participate in Sydney Water's low-cost water saving programs. However, it is recognised that for large families, reducing water consumption is more difficult. To address this, most large families will be eligible to receive a free home retrofit of water efficient fittings. In addition, low-income families using more than 400,000 litres per year will be eligible for a \$40 annual rebate on their water bill.

Future challenges – sending price signals to all water users

Currently around 40% of households do not pay individual water usage charges – for example, most people living in apartments pay for a share of the building’s total water use, rather than paying according to their actual consumption. As a result, there is less incentive for such users to reduce water use. IPART analysis estimates that not receiving a water usage bill increases a household’s water use by approximately 19%.

IPART estimates that substantial savings could be achieved – in the order of 18 billion litres per year – if such households were able to reduce their water use in line with the community average.

As the share of medium-density housing in Sydney grows, the percentage of individually metered households will fall relative to total housing stock, unless action is taken. Sending direct price signals to as many customers as possible will help promote more efficient water use and reduce pressure on supplies.



Recognising this, Sydney Water is undertaking a trial to examine the costs and benefits of individual metering in multi-unit apartment blocks, and is looking at several new technologies such as remote metering to make it practical and cost effective. A report on the trial will be complete by early 2007. The outcomes of the trial will be monitored, and where cost effective the uptake of individual metering will be progressed over time.

As with residential customers living in multi-unit apartments, shopping centre tenants generally pay for a share of the total building’s water consumption, rather than paying according to actual usage. Metering and charging for individual water usage would overcome this, allowing price signals to be sent direct to water users and thus encouraging efforts to increase water efficiency. See section 6.4.1 for further information.

In December 2005, the Department of Housing (DoH) commenced recoupment of water usage charges from public housing tenants for the first time. From that date all tenants of the Department have paid a percentage of their rent as a water usage contribution. Later in 2006, tenants of separately metered DoH properties will commence to pay for the actual water they use. A key objective of this initiative is to increase awareness of water management among public housing residents.

Future challenges – removing barriers to investment in demand management

Currently the treatment of investments in ‘engineering’ water supply options (such as dams and pipes) differs from the treatment of investments in measures that save water. Investment in new ‘engineering options’ is depreciated or amortised over 100 years, while investment in demand management is classed as operating expenditure and passed through to customers via water charges generally in the year in which the cost is incurred (even though the water savings will last well beyond the year in which the expenditure is incurred). This issue will be further examined in the lead up to the next water price determination to ensure that it does not hinder the objective of meeting Sydney’s water needs at least cost.



The combination of water pricing reforms, ongoing water saving measures and education campaigns for outdoor water use is projected to save around 19 billion litres of drinking water each year, by 2015.

6.2.6 Partnering with the community

The key to meeting Sydney's water needs in the future is community ownership of the problem and the solution. The responses to a recent survey shown below indicate that there is broad agreement on the fact that long term water management in Sydney requires action by the Government but also by individuals and businesses.

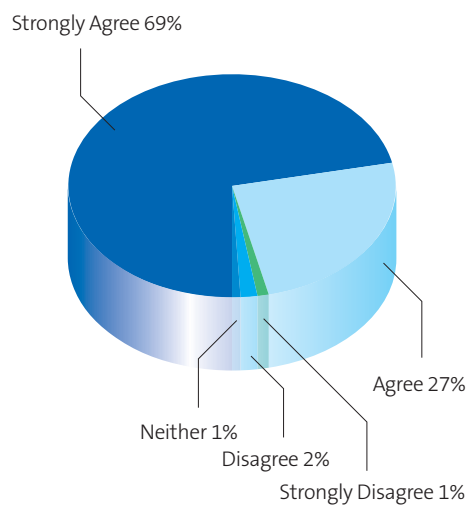
The community is now increasingly aware of the challenge of supplying water in a dry country.

For a partnership with the community to work, there must be a free flow of information about what is being done, what should be done, and how to do it. The public is looking to the Government to provide the leadership, information and tools to guide their efforts to save water.

An extensive water education campaign is already in place for Sydney, including campaigns for people from culturally and linguistically diverse backgrounds, featuring the following:

- Water For Life
- Go Slow on the H₂O
- Every Drop Counts
- WaterWise On The Farm.

“Do you agree that everyone including households, local councils, business and government is responsible?”



The benefits of an informed community

Outdoor water conservation

- 93% of Sydney Water customers are aware of the Go Slow on the H₂O campaign
- Water conservation website accessed by 348,000 visitors in 2004-05
- 100 billion litres reduction in use each year under restrictions

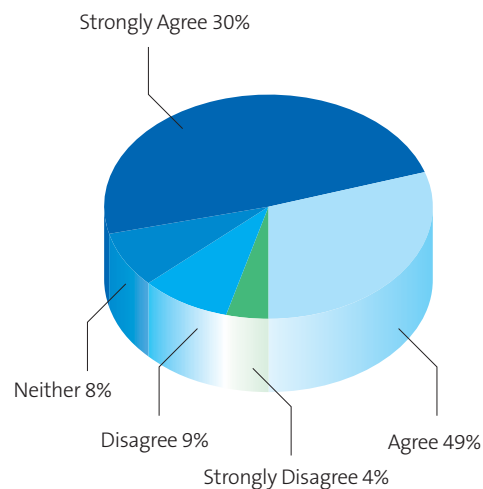
Indoor retrofits

- 75% of Sydney Water customers aware of the program
- over 310,000 homes have participated
- 6.5 billion litres saved each year
- \$30-\$100 in utility bills saved for each participating household

Every Drop Counts Business

- over 7.3 billion litres saved each year
- 304 participating partners

“Do you agree that individual households can really make a difference to the amount of water that is saved?”



To build on this work, the *Metropolitan Water Education Plan* is being implemented to provide further information to the community about what is being done across the full range of measures and what individuals can do to assist. It includes the following objectives:

- Increase the perceived value of water and the community's understanding of the factors that affect water supply.
- Change water use practices among individuals, households, farmers, industry and business throughout greater Sydney in order to reduce demand for water.
- Respond to needs for communication and education that emerge through the course of implementation of this *2006 Metropolitan Water Plan*.
- Demonstrate the Government's leadership to secure long term water supply for the community.

In addition to education about water savings, many of these education programs also relate to recycling (see Chapter 5).

Further communications campaigns and education programs will focus on reaching two broad groups of target audiences: the greater Sydney community and agents of change in the community. The focus for the first will be communications through electronic and print media. For the second group, partnership programs will focus on skills, knowledge and training.

Water conservation education for non-English speaking people

Research shows that ethnic communities vary greatly in their understanding of environmental issues. Funds will be provided to expand water conservation education to the Ethnic Communities Sustainable Living Project, an established environmental education program conducted in partnership with the NSW Ethnic Communities Council. Twenty bilingual educators from eight ethnic communities will conduct environmental education and training sessions within their own communities.

Professional development and resources for teachers and schools

There is an ongoing need to ensure that young people acquire a basic understanding of water sustainability and its implications for their own lives and the broader community, so as to equip them to play an informed and active role in conserving water for current and future needs.

Funds will be provided to the NSW Science Teachers Association and the NSW Geography Teachers Association to develop teaching and learning materials, to develop a professional development package and to train teachers from the greater Sydney region. Training will be completed by July 2007. Future support will be given via the internet and a network of school environmental educators. This program will ensure that year 5 to 10 Science and Geography teachers have access to high quality teaching and learning resources on water sustainability, and are trained to effectively use them.

Sydney Water also runs several school related programs to educate students about the value of water and to encourage schools to adopt efficient water use as a long term policy. Along with the Every Drop Counts in Schools Program and the



Market gardeners at Rockdale during irrigation efficiency training

Rainwater Tanks in Schools Program (see section 6.3 for further information), Sydney Water is also working closely with the Department of Education and Training to review the overall framework for water education in years K to 12 that will help develop future 'water responsible' citizens. Water education materials are also being developed.

Greenhome workshops

Continued reductions in household water demand require ongoing community-based education. The Australian Conservation Foundation's Greenhome project involves a series of community workshops and events focusing on what people can do in their own lives to help the environment. It is a component of the NSW Government's *Environment – It's A Living Thing* sustainability education partnership program. The program is funded from the Environmental Trust, and has demonstrated successful water savings outcomes. The Government is providing funds to expand the Greenhome project with workshops for householders specifically focused on water conservation throughout the greater metropolitan area.

Water education for the property sector

Commerce and industry use 22% of Sydney's drinking water, and the Government is providing funds to the Property Council to develop a training package, deliver workshops, and disseminate water efficiency information in its newsletters. The Property Council represents developers, managers and owners, and supports its members' interests in BASIX, Energy and Water Savings Action Plans, and sustainability, so this is an efficient education mechanism to enhance the effectiveness of the Every Drop Counts Business Program.



For further information, go to the Water For Life website, which has links to all relevant government information www.waterforlife.nsw.gov.au or see the Water Conservation and Recycling Implementation Report prepared by Sydney Water www.sydneywater.com.au/Publications



Students from Helensburgh Public School carrying out a water audit under Sydney Water's Every Drop Counts in Schools Program.

6.3 Water Smart government

State and local government together account for around 4% of drinking water use in Sydney. A number of programs have been developed to ensure government water use is as efficient as possible, and that the sector is contributing to a sustainable water supply for Sydney.

Several water saving programs that apply to government are also applicable to the industry and household sectors. These 'cross sectoral' programs can be found in section 6.2, and include the Water Savings Fund, Water Savings Action Plans, water pricing reforms and the Every Drop Counts (EDC) Program. This section contains those measures which apply to government only, as well as government case studies from the EDC Program.

Government case studies from the Every Drop Counts Business Program

Government authorities sector

A water audit of NSW Parliament House was completed in 2004-05. The audit identified opportunities to reduce water consumption by 8 million litres per year. NSW Parliament House implemented the recommendations to retrofit the entire building with AAA shower heads, install flow restrictors in all hand basins, install sensor operated flushing units on urinals, install sub-meters on major water using facilities and to connect these meters to the building's management system.

Local government

Parramatta Council has reduced water use in many of its facilities and public spaces. Council currently reuses groundwater collected from various flooded industrial pits to water its extensive playing fields. An example is the irrigation system at Doyle Ground, North Parramatta which covers the entire sports ground area and, based on seasonal use, will be able to reuse approximately 48 million litres per year for irrigation, saving \$14,000 per year on Council's water bill.

Health sector

The public health system accounts for more than 80% of the health sector's water consumption.

Two of the major hospitals, Westmead and Prince of Wales, have participated in water audits that have resulted in significant water savings through reduction of leakage and wastage. Prince of Wales Hospital reduced water use by around 200 million litres per year. With the help of Sydney Water, Westmead Hospital staff have identified and

rectified leaks, saving more than 60 million litres per year.

Education sector

TAFE's Sydney Institute was given the opportunity to implement several water conservation projects through the Water Saving Pilot Fund, overseen by Sydney Water. Projects targeted sites with high water use across the institute and involved modifications to amenities at the St George, Gynea and Ultimo Colleges. Approximately 33 million litres per year will be saved as a result of these projects.

6.3.1 Government efficiency

The NSW Government will lead by example through a new policy on Sustainable Water and Energy Use. This initiative is presently being developed and will:

- reduce energy consumption and greenhouse gas emissions
- reduce water consumption
- save on energy and water bills.

All general government sector agencies will be required to improve energy and water efficiency in their buildings and facilities. The Government will demonstrate leadership by rating and improving the water performance of its office buildings and tenancies using the NABERS OFFICE Water rating tool. For sites with high water or energy use, more detailed Savings Action Plans are to be prepared (see section 6.2.2).

The policy will be in place by July 2006 and will replace the current Government Energy Management Policy. The target is to reduce overall drinking water consumption by government agencies by 15% by 2010-11 or around 1 billion litres per year.

To help ensure the 15% target is achieved, the Government is doubling the size of the NSW Treasury Loan Fund which government agencies can access to implement water and energy efficiency improvements. The size of the Fund will now be increased by \$20 million to a total of \$40 million. Agencies can apply to the Fund for assistance to implement measures identified in their Water Savings Action Plans. Borrowings from the Fund are then repaid from the savings that result from improved efficiency.

Installing water efficient appliances in new buildings, or as old fittings are replaced in existing buildings, is one of the most cost effective ways to save water and contribute in a positive way to reduced water use over the longer term. In order to take advantage of these savings the Government will alter procurement requirements to ensure that agencies preferentially purchase water efficient appliances fittings and other water using equipment.



Auditing and metering of Government sites is projected to save up to 1 billion litres of drinking water each year, by 2015.

6.3.2 Water Smart schools

Leakage reduction in schools

The 2006 Progress Report announced a trial of permanent smart monitoring and alarm systems in 20 schools to reduce the frequency and volume of water leaks. If the trial is effective, the program will be rolled out to the other 920 government schools within greater Sydney by 2008. Water savings from the trial are expected to be in the order of 20 million litres per year in 2015.


Rainwater Tanks in Schools Program

To help raise awareness among school students of the value of water and the importance of saving water for the future, the Rainwater Tanks in Schools Rebate program was introduced in April 2004.

The program encourages public and private schools connected to Sydney Water supply mains to install a minimum 10,000 litre rainwater tank and receive a rebate of up to \$2,500. Small schools may install smaller rainwater tanks and qualify to receive a rebate if certain other conditions are met.

By the end of February 2006, payments have already been made or are approved to 85 schools, and an increasing number of schools are submitting applications each month. Total savings for the Program are estimated at 20 million litres per year in 2015.

As part of the program, schools also commit to undertake a water audit of the school and develop a water saving plan to reduce water consumption. The program has been extended to 30 June 2006.

 More information on rainwater tanks in schools can be found at:
<http://www.sydneywater.com.au/SavingWater/RainwaterTanks/RebateSchools.cfm>

Every Drop Counts in Schools Program

Developed in conjunction with the NSW Department of Education and Training, the Every Drop Counts in Schools Program targets reducing water use in primary schools by increasing the awareness of water conservation. This occurs through a series of curriculum-based lessons, involving students in a water audit and development of a water saving plan for the school. This EDC in Schools Program was developed in response to audit findings that on average, schools could reduce water usage by up to 50%. A total of 113 schools have now completed the program since its launch, delivering estimated savings of 181 million litres per year.

6.3.3 Government sites audits and metering

The 2006 Progress Report announced that the Government sites which are required to complete Water Savings Action Plans (see section 6.2.2) and approximately 23 additional high water using Government sites will be audited for water efficiency and have sub-metering installed to better identify high use areas. These 60 plus sites (mainly hospitals, correctional facilities and TAFEs) are expected to deliver savings within two years in the order of 25 to 30% - that is around 1 billion litres per year.

6.4 Water Smart business

The commercial and industrial sectors account for around 22% of drinking water use in Sydney.



For the majority of businesses, water services represent only a very small component of overall operating costs, and water efficiency programs have to compete for resources against other core business initiatives. To overcome these factors, a range of successful programs has been developed to improve how businesses think about and use water.

Several water saving programs applying to business are also applicable to the government and household sectors. Details of these 'cross sectoral' programs can be found in section 6.2, and they include the Water Savings Fund, Water Savings Action Plans, water pricing reforms and the Every Drop Counts (EDC) Program. This section contains those measures which apply to businesses only, as well as business case studies from the Water Savings Fund and EDC programs.



The Every Drop Counts in Schools Program is projected to save around 0.2 billion litres of drinking water each year by 2015.

**Successful water efficiency projects -
round 1 of the Water Savings Fund**

**Energy Conservation Systems
Water Savings in City Towers through Integrated
Water Management Systems
Funding: \$1,000,000**

Toilets, showers, taps and leaks in high rise office blocks will be targeted for water efficiency in this water management project developed by Energy Conservation Systems. The company plans to work with the building managers and tenants of high water use office buildings, hotels and apartment blocks to introduce smart metering systems to monitor and gauge use and replace inefficient fixtures with water saving technology. The project aims to save 25% of the water in the office buildings targeted and will include an educational and promotional component. Total estimated savings are 87 million litres per year.

**Ethnic Communities Council
Saving Water in Asian Style Restaurants
Funding: \$391,000**

Restaurant owners will be encouraged to become more water efficient by replacing one of the biggest water-guzzling appliances in the commercial kitchen - the wok stove. The Ethnic Communities Council has developed a multi-lingual education program to promote the economic and environmental benefits of water efficiency in business and encourage restaurateurs to switch to new 'waterless' wok stoves which can save up to 5,500 litres of water per stove per day or 2 million litres per year.

**Irrigation Association of Australia
Improving urban irrigation practice in Sydney
Funding: \$270,000**

Improving knowledge of best-practice water techniques for the home garden and irrigation of public parks is the aim of this new public education program. The project will complement existing community WaterWise education programs with a focus on watering and irrigation. It will involve the development and promotion of training courses for industry, garden professionals and local government staff to increase skills in auditing and best practice irrigation in urban areas. Total estimated savings are 27 million litres per year.

**Master Plumbers & Mechanical Services
GreenPlumbers Water & Energy Saving Training
& Accreditation
Funding: \$263,600**

More than 1,000 plumbers will have the chance to become trained and accredited as industry experts in household water and energy efficiency with the expansion of the GreenPlumbers program over the next four years. Developed by the Master Plumbers and Mechanical Services Association of Australia, the GreenPlumbers program will offer plumbers free training to learn about the new rules for water and energy efficient housing in NSW and become accredited under a nationally recognised scheme.

**Save-A-Drop Products Australia Pty Limited
Save-A-Drop Water Saving Devices
Funding: \$120,000**

Save-A-Drop car wash is a self-contained water-pumping system which connects to a 12 volt supply to pump water from a bucket to spray clean your car. It uses 25 litres of water to clean a whole car compared to 99 litres for an average bucket wash or 180 litres using a hose. Products will be developing a marketing plan and beginning a radio, TV and newspaper advertising and promotion campaign to market the product to car owners.

**University of Western Sydney
Smart irrigation technologies for saving drinking
water on vegetable farms
Funding: \$160,164**

Vegetable growers in the Hawkesbury district will be reducing their water use with the introduction of innovative irrigation technology on their farms. The project involves the installation of two types of irrigation systems on eight farms. The project will be run by the University of Western Sydney in partnership with the NSW Department of Primary Industries. Total estimated savings are 16 million litres per year.

**URS Australia
Reducing drinking water use on golf courses and
parks
Funding: \$40,670**

New studies on water evaporation rates on different landscapes will be used to introduce new watering regimes at golf clubs in the Ku-ring-gai local government area. URS will work with club ground keepers and Ku-ring-gai Council to recommend changes in watering frequencies, irrigation and maintenance based on specific environments. As well as saving water, the project will reduce nutrient runoff and improve overall soil moisture levels. Total estimated savings are 13.7 million litres per year.

Every Drop Counts Business Case Studies

Commercial and financial sector

Lend Lease Retail joined the EDC Business Program in October 2003. A water efficiency audit conducted at Macarthur Shopping Centre resulted in savings of 31 million litres per year and identified further savings opportunities of 18 million litres per year.

Hospitality sector

The hospitality sector accounts for 11% of total business sector usage. For the clubs sector, delivery of the Water Check Program was completed, bringing the total number of clubs that participated in the program to 35. This resulted in the Program achieving water savings of more than 200 million litres per year - an average saving of more than 30% per club – and enabled Sydney Water to develop and launch the Water Conservation Best Practice Guidelines for Clubs.

The Water Check Program for Hotels enables each hotel to be benchmarked against Sydney Water's Water Conservation Best Practice Guidelines for Hotels. Water savings that have been achieved as a result of the Water Check Program for Hotels are nearly 100 million litres per year.

Manufacturing sector

The paper manufacturing industry is a large consumer of water, using over 4 million litres per day or nearly 1.5 billion litres per year. One of Sydney's largest paper mills trialed a drum filter in October 2003. The clarified water from the drum filter was used to replace 250 million litres per year of drinking water use in various applications, such as for chemical dilution. The company had also been benchmarking its water use per tonne of paper manufactured and had reduced water usage by 15% since joining the EDC Business Program in 2002. The paper mill will continue to focus on optimising the drum filter with further drinking water savings of over 200 million litres per year targeted by mid 2006.

6.4.1 Saving water in new commercial and industrial premises

The Government is investigating a range of water saving initiatives for new commercial and industrial premises. Incorporating water saving measures into the design and construction of new buildings and factories is typically much more cost effective than doing it later, and is particularly important given that large water users are now required to prepare Water Savings Action Plans (see section 6.2.2).

To ensure new developments are optimally efficient, the Government will develop guidance on incorporating water saving measures as part of the development assessment process, including water recycling, collection and use of roof water and storm water, and water efficiency.

The Australian Greenhouse Office has commissioned a scoping study to investigate the range of issues which impact on the efficient use of water at the building level. Following the completion of the scoping study, due by the end of 2006, the NSW Government will work with the Australian Building Codes Board to investigate use of the Building Code of Australia and other options to promote improved water efficiency in new buildings.

To ensure new industrial and commercial premises can effectively monitor and audit water use across their facilities, the Government will examine options to require installation of sub-meters in areas of high water use. Industrial and commercial premises can be complex, and have a number of high water using components such as boilers and cooling systems. There is presently only a requirement for these premises to have a water meter for total water use. Installing sub-meters in new developments is an easy and cost effective way to help identify leaks and optimise efficiency, helping to save water over the life of the plant or building and reducing pressure on water supplies.

Many premises such as shopping centres do not have individual metering for each business, so water bills are worked out by the centre manager based on floor area. This means water users do not receive direct price signals about their water consumption. As such there is little or no incentive to reduce water wastage or improve efficiency. The Government will examine options to encourage the uptake of individual metering in new commercial premises.

6.4.2 Saving water in existing commercial and industrial premises

In addition to the cross sectoral programs outlined in section 6.2, there is also a voluntary scheme to encourage sustainable practices in NSW.

The NSW Government launched the National Australian Built Environment Rating System (NABERS) OFFICE Water rating tool in April 2006. NABERS OFFICE Water is a voluntary rating system for the environmental performance of existing buildings, and encourages best practice in the operation and maintenance of commercial and government office buildings to minimise water use.

Four of the largest commercial property owners and managers in Australia – Investa, Colonial First State, Stockland and AMP - have already committed to rating the buildings in their portfolios using NABERS OFFICE Water. NSW Government office buildings and tenancies will be rated under the policy on Sustainable Water and Energy Use, and other building owners will also be encouraged to rate their buildings and to improve their ratings to achieve best practice. It is anticipated that 50% of office space in Sydney will have obtained accredited NABERS OFFICE Water ratings by 2009-10.

 Further information on NABERS is available at <http://www.nabers.com.au>

6.4.3 Other programs

EDC Business Program customer retrofits

Sydney Water is currently investigating a proposed program using contracted plumbers to fix leaks and install water efficient devices for business customers. To determine potential savings and project costs, a pilot program will target up to 50 small to medium businesses and some large commercial properties. The pilot program will be aimed at replacing showers, fitting flow controls to taps, adjusting toilet cisterns and optimising flush cycles for urinals. A market survey will be undertaken to research potential uptake from business customers.

EDC Business Program Do-It-Yourself Retrofits

A pilot program will offer 50 business customers a Do-It-Yourself amenity retrofit program for toilets, taps and showers. The customers in the pilot will have their amenities individually metered to quantify water savings. The manufacturing sector is most suited for the pilot because most of these customers have access to plumbers and tradespeople who can conduct the installations.

6.5 Water Smart agriculture

The Sydney basin agricultural sector uses up to 12 billion litres of water per year from the drinking water system, and draws a further 110 billion litres per year directly from rivers and farm dams. The total water use by farmers of around 122 billion litres per year is much less water than the combined household use in Sydney of around 375 billion litres per year. This makes the Sydney basin different to the large inland catchments where much of the water is released from dams specifically for irrigation, and where agriculture accounts for some 70% of total water use.

Nevertheless, agriculture is still a large consumer of drinking and river water in the greater Sydney area. Improving efficiency can reduce overall water usage by up to 25%, and thus improve river health, save money, and help reduce pressure on drinking water supplies.

6.5.1 Water Smart farm extension and education services

The state-wide program of Water Smart Farms, which incorporates the 'WaterWise on the Farm' initiative, is a farm extension and education program that offers education, training and increased community awareness of water use efficiency. The program, which is run by the NSW Department of Primary Industries continues to successfully assist farmers to optimise on farm water use efficiency while maximising yield of irrigated crops and pastures.

The initiative is being delivered in the Sydney region through field days and courses on irrigation management.

A modified version of the irrigation management course for water users with Vietnamese, Chinese, Khmer and Arabic backgrounds is available. Over 400 Sydney basin farmers have completed one of the courses.



Cambodian vegetable farmers discussing new drip irrigation technology

In 2004 an incentive scheme, linked to the courses, equipped 32 farmers in the Sydney basin to prepare Irrigation and Drainage Management Plans, enabling these farmers to receive grants of over \$380,000 towards more than \$1 million worth of water management technology.

Water use changes included upgrading pumps and irrigation systems, modifying nozzle sizes and sprinkler heads, refining irrigation scheduling, and using recycled water. (More information on recycling in agriculture is presented in Chapter 5.)

Applications can now be made to the Water Savings Fund for financial assistance to improve irrigation efficiency, and one such application has already been successful. See section 6.2.1 and the case study opposite.

Improved agricultural water use efficiency is also being addressed through improved metering and water trading provisions. Metering and water use monitoring are on track to be in place for all irrigators in the Sydney basin by December 2007 to facilitate reporting of water use against entitlements.

Flow meters are required for the top 100 licence holders who hold 36% of the total licensed volume. Lower volume water users are being required to install electricity meters and hours-run meters on their pumps. This group of 900 users command 59% of the total licensed volume. Since the publication of the *2004 Metropolitan Water Plan*, 80% of the first group have installed flow meters and the first annual audit of monitoring requirements has been conducted.



Further information on the program is available at:
www.agric.nsw.gov.au/reader/irrigation

Saving Water on vegetable farms

Vegetable growers in the Hawkesbury district will be saving water on their farms with the introduction of 'smart' irrigation technology.

In a \$160,000 project developed by the University of Western Sydney, in partnership with the NSW Department of Primary Industries, the technology will be installed on eight farms, saving 16 million litres of water a year.

The project is one of 27 water saving initiatives receiving a total of more than \$9.2 million funding in the first round of the Water Savings Fund.

Following field tests of two types of smart irrigation technology, the equipment will be installed on vegetable farms to save growers water and demonstrate the potential across the industry.

The Irrigation Water Recycling System (IRWS) was developed by the NSW Department of Primary Industries and trials have demonstrated that it can reduce water use by half and protect waterways by reducing runoff.

The second system, the Kapillary Irrigation Sub-Surface System (KISS), saves up to 60% of water by underground irrigation directed at the plants' root system. It also saves water loss through evaporation and runoff.



Rainwater tanks enabled this vegetable grower to totally eliminate the need to use drinking water for his hydroponic production

6.5.2 Management of water accessed under the domestic and stock right

NSW water legislation provides a right for people who live beside rivers or whose land overlies groundwater to take water for use around their house, growing food and watering their animals. This basic landholder water right is known as the domestic and stock right.

Extractions from surface water for the domestic and stock right are estimated to be in the order of 14.6 billion litres per year in the Hawkesbury-Nepean River catchment. The water sharing plans being developed for surface water and groundwater in the greater Sydney region take account of the likely volumes of domestic and stocks rights water with the total plan extraction limits.

Where it does not cause undue extraction pressures on local water sources, exercise of the domestic component of the right by Sydney's householders can be positive, by contributing to the conservation of the drinking water supply for the purposes where highest grade water is needed, such as cooking and bathing. It is recognised however, that in areas with high population density, large increases in the volume of water accessed from adjacent rivers and groundwater could place an additional and unacceptable pressure on local water sources,

particularly during drought. For this reason, the Government is in the process of developing guidelines to define what is reasonable for use of water accessed under the domestic and stock right. These Reasonable Use Guidelines will include limits on the total volume of water that can be used for household purposes under the domestic component of the right and on the garden area maintained by use of this water.

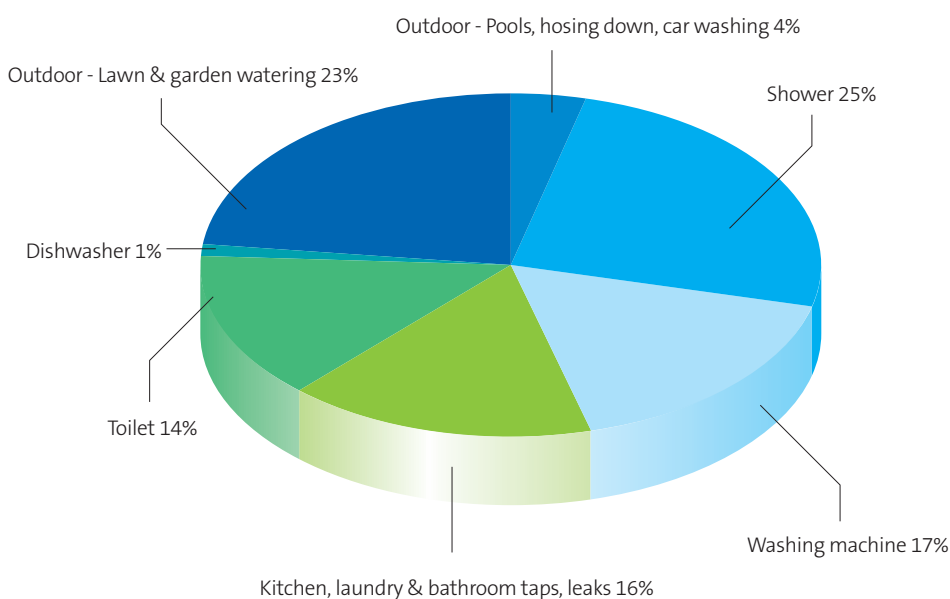
It is expected that these Reasonable Use Guidelines will be placed on exhibition for public comment by the end of 2006.

6.6 Water Smart households

There is a common misconception that the major water users in Sydney are business and industry. In fact, in a typical year without drought restrictions, households in Sydney account for about 70% of total drinking water use. The figure below shows major areas where this water is used around the home and garden. A broad range of water saving programs are in place to reduce water use in each of these areas.

Sydney's householders have made significant efforts in reducing the amount of water they use. A total of more than 30 billion litres has been saved in households since 1999, and by 2015 savings will be around 56 billion litres per year.

Where water is used in and around the home



The BASIX system for new homes is projected to save around 20 billion litres of drinking water each year, by 2015.

6.6.1 Building Sustainability Index (BASIX)

BASIX for new homes

Introduced by the NSW Government as a world-first sustainability tool in July 2004, the Building Sustainability Index (BASIX) is a major initiative to reduce the amount of drinking water consumed and greenhouse gas emitted by new homes across NSW. In Sydney, the BASIX policy includes a requirement that new dwellings must be built to use 40% less drinking water than the NSW average. Drinking water use is determined by the number of household occupants, the size of the garden area, the size of the swimming pool (if nominated) and the influence of local climate. Drinking water savings are then calculated by the commitments nominated during the BASIX assessment of the proposed dwelling.

BASIX applies to houses and, since October 2005, to multi-unit dwellings, such as townhouses and low, mid and high rise apartment blocks. In the period July 2004 to December 2005, it is estimated that approximately 30,000 single dwellings in Sydney have been assessed under the BASIX policy.

BASIX offers maximum flexibility by recognising a range of water saving measures to suit individual household budgets, homes and lifestyles, and surrounding environmental conditions.

In addition to saving drinking water, the BASIX Scheme helps to decrease household water and energy bills. It is almost always more cost effective to install water and energy saving measures at the point when a building is being planned, rather than retrofitting those measures subsequently.

In Sydney, the effectiveness of the water-related components of BASIX will be evaluated in a monitoring program in a partnership between the Department of Planning and Sydney Water, when there is an appropriate sample size of occupied BASIX-compliant dwellings.

Saving water under BASIX

The average consumption of drinking water across all NSW households is currently estimated to be 90,337 litres per person per year. (This is the water consumed in residences only and is not the drinking water used in non-residential sectors, such as offices, restaurants, manufacturing and hospitals.) In Sydney and the coast and ranges of NSW, where rainfall is relatively high and the evaporation rate is lower than other parts of the state, the BASIX scheme requires that all dwellings are designed to use 40% less than the average drinking water consumption.

To achieve the BASIX water requirements, households can install combinations of the following:

- water efficient fixtures, such as 3-star showerheads, 3-star tap ware and 3-star toilets
- rainwater tanks for garden watering and toilet flushing, or using alternative water supplies including domestic greywater, groundwater and recycled water supplied via a third pipe system for permitted household uses
- landscaping with low water using plants, including suitable native and exotic species
- approved covers for swimming pools and outdoor spas
- in multi-unit dwellings, centralised greywater treatment systems or water efficient clothes washers and dishwashers, and
- provided certain criteria are met, other water saving technologies as they come to market.



Example BASIX certificate



The building applicant (the architect, builder, or owner-builder) is responsible for completing a BASIX assessment, ensuring the BASIX commitments are clearly marked on the plans, and submitting the BASIX Certificate with the development application

BASIX for alterations and additions

From July 2006, BASIX will also apply to all major alterations and additions to dwellings across NSW. The aim is to ensure that all alterations and additions to NSW dwellings include cost effective and practical measures to reduce greenhouse gas emissions and drinking water consumption, as well as improve thermal performance. The Scheme will affect changes to dwellings such as first floor additions, ground floor extensions, new bathrooms and kitchens, and ancillary developments such as new swimming pools. Water and energy efficiency requirements will need to be met in the altered or added part of the property, and rainwater tanks are generally required where a new swimming pool is proposed.

The independent expert analysis of the supply and demand balance undertaken for this *Metropolitan Water Plan* indicates that, by 2015, the expected water savings in Sydney attributable to the BASIX Scheme for new dwellings and the alterations and additions Scheme is expected to be 23 billion litres per year. This analysis took account of the fact that certain underlying drivers of residential water consumption will change over time. For example, by 2015 it is highly likely that clothes washers, dishwashers and toilets available for purchase in Australia will use less water than the models currently available.



For more information on BASIX, visit the website at www.basix.nsw.gov.au

6.6.2 Water efficiency in existing homes

The Government is investigating options to provide information on a dwelling's water efficiency when it is sold, such as the provision of a certificate to inform potential purchasers about whether a WaterFix retrofit has been carried out on the house. Also being investigated are possible water efficiency measures, including installation of efficient fittings or use of a rating scheme like NABERS HOME Water.

The Government will be launching the National Australian Built Environment Rating System (NABERS) HOME Water rating tool in mid 2006. NABERS HOME Water is a voluntary rating system which enables householders to rate their environmental performance compared to the average house in Australia, and provides information on how to reduce water use and improve the rating of a dwelling.

6.6.3 Efficiency labelling and standards

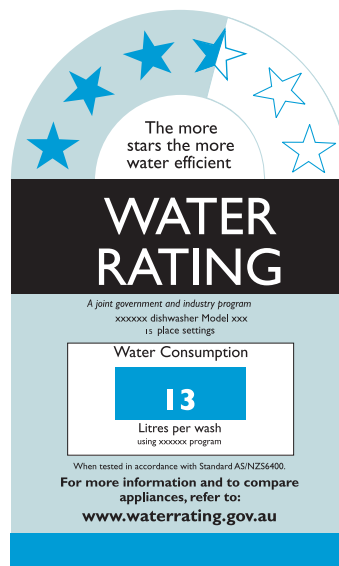
To encourage the purchase and adoption of water efficient devices, the Water Efficiency Labelling and Standards (WELS) Scheme has been developed to provide information to consumers on the performance and water efficiency of water appliances. The Scheme applies mandatory water efficiency labelling to the major household water using products such as washing machines. The Scheme requires water using devices to display labels at the point-of-sale to allow consumers to compare products and make informed purchases.

The water using products covered by the WELS Scheme currently include:

- clothes washing machines
- dishwashers
- toilet equipment
- showers
- tap equipment intended for use over a kitchen sink, bathroom basin, laundry tub or wash trough
- urinal equipment.

Simply by purchasing an efficient version of a product, a household can make significant water savings. The box on page 71 provides further information on water use for different products and star ratings.

Because goods are manufactured and sold across Australia, the Scheme is an initiative of the Commonwealth, States and Territories Governments. It commenced nationally on 1 July 2005, with a voluntary labelling scheme and minimum performance standards for toilets. From 1 July 2006, mandatory registration and labelling will apply to all of the products listed above.



The BASIX system for alterations and additions is projected to save around 3 billion litres of drinking water each year, by 2015.



Implementation of WELS is projected to save around 15.4 billion litres of drinking water each year, by 2015.

What the star ratings mean for some typical household products ^a						
Product	Star Rating ^b					
	6-star	5-star	4-star	3-star	2-star	1-star
Clothes washer (4 kg) Litres of water per wash	20	29	41	59	84	120
Dishwasher (12 place settings) Litres of water per wash	8.3	10.1	12.2	14.8	17.9	21.7
Toilet equipment Litres of water per flush ^c	2.5	3.0	3.5	4.0	4.5	5.5
Shower head Litres of water per 8 minute shower	Not currently available	Not currently available	Not currently available	72	96	128
Taps and flow controllers Litres of water per minute	4.5	6.0	7.5	9.0	12	16

Source: AS/NZS 6400.2005

(a) Indicative figures only – please check labels when purchasing products to confirm water use

(b) Water use must be less than or equal to the volume indicated to qualify for the particular rating

(c) Average of 1 full and 4 reduced flushes

A key part of the WELS Scheme is the introduction of a new water rating label to assist consumers to purchase more water efficient household products. It also provides incentives for manufacturers to improve the water efficiency of these products. The WELS Water Rating label has two main features:

- a star rating that gives a quick comparative assessment of the product's water efficiency,
- a water consumption figure that provides an estimate of the water consumption of the product based on its tested water consumption.

Once a product is registered under the Scheme, compliance with the relevant standard and labelling requirements will be obligatory. Further products are expected to be added to the Scheme over time. Although all products must be labelled, toilet equipment is the only category which has a mandatory minimum water efficiency requirement at this time. Devices that are less efficient will still be available for sale, however the labels will enable consumers to choose more efficient products if desired.

Improved customer recognition and uptake of water efficient products should encourage retailers and distributors to expand the range of these products and encourage manufacturers to design more water efficient products.

Labelling is estimated to reduce domestic water use by 5% or approximately 15.4 billion litres per year in Sydney by 2015. Nearly half of this would come from clothes washers, about 25% from showers and 22% from toilets. More than 86% of the water savings would occur in the residential sector, and the rest in the business and government sectors. With consumers choosing more efficient products, the NSW community is expected to save almost \$225 million through reduced water and energy bills by 2021.

The NSW Government has been active in all aspects of WELS Scheme development. NSW is now leading efforts to introduce minimum standards to devices in addition to toilet equipment.

When it becomes mandatory from mid 2006, the WELS Scheme will replace the existing voluntary National Water Conservation Rating and Labelling scheme, which is the 'A' rating scheme familiar to many. Some 'A' rating labels may still be seen alongside the new WELS star rating system until existing stock is cleared.



For more information
on the WELS Scheme visit
www.waterrating.gov.au

6.6.4 Washing machine rebate program

To help speed the transition to efficient washing machines and to encourage industry to develop new products, the *2006 Progress Report* announced that a new Washing Machine Rebate Program would be implemented in March 2006. Under the program, which will run for one year, a \$150 rebate will be provided to residents in Sydney Water's area of operations for the purchase of a new 4-star or 5A rated water efficient washing machine.

Washing machines were selected for the rebate scheme as they are a big water user in the average home and water efficient machines are a cost effective way to make real savings. Efficient machines currently make up only a small percentage of sales, and the program is designed to complement the Water Efficiency and Labelling Standards (WELS) Scheme by encouraging NSW residents to install them.

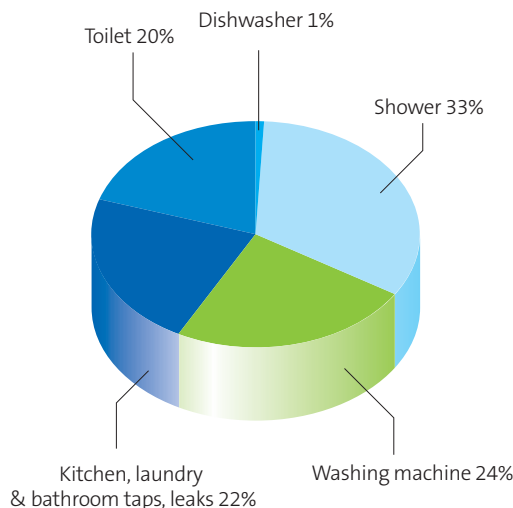
Using a more efficient machine delivers annual savings of around 21,000 litres of water, 125 kilowatt hours of electricity and, as a result, around \$45 off utility bills. Within Sydney, the program, combined with the savings from a 2003 pilot program, is expected to save around 0.5 billion litres per year.

See section 6.6.3 for a comparison on water usage for rated washing machines.

6.6.5 WaterFix – improving water efficiency in homes

Indoor water use for showers, toilets and taps accounts for a significant proportion of total household demand. The Every Drop Counts Residential Retrofit Program commenced in 2000 to improve efficiency in existing homes and to help people to reduce their utility bills.

Where water is used inside the home



The program, now known as WaterFix, offers householders the opportunity to have a qualified plumber install water efficient fittings and fixtures in their homes. The retrofit includes the installation of 3-star (or AAA) rated showerheads, tap-flow regulators and toilet cistern flush arrestors, and the repair of any minor leaks. A retrofit reduces household water use by an average of 20,900 litres per year.



The service has a retail value of over \$150 but is provided to households for \$22. It is offered free of charge to low-income households holding a Pensioner Concession Card, a Health Care Card or a Veteran's Affairs Gold Card.

The WaterFix Program is one of the largest residential water efficiency incentive programs offered anywhere in the world and has received strong support from householders, with approximately one in five Sydney households taking up the offer. In 2004-05, more than 40,300 households received a retrofit. In total, retrofits have been provided to more than 310,000 homes.

The program has also raised community awareness of water saving practices, as shown by the high level of customer interest and the high uptake rate across greater Sydney.

The program is being expanded to achieve a total of 550,000 retrofits by 2008, including Department of Housing retrofits and Do-It-Yourself water saving kits.

0.5

The washing machine rebate program is projected to save around 0.5 billion litres of drinking water each year, by 2015.

8.2

The WaterFix program is projected to save around 8.2 billion litres of drinking water each year, by 2015.

1.5

The Department of Housing Retrofit Program is projected to save around 1.5 billion litres of drinking water each year, by 2008.

1.6

The Do-It-Yourself Water Saving Kit is projected to save around 1.6 billion litres of drinking water each year, by 2015.

WaterFix Program highlights

Since the program commenced in January 2000, the following has been achieved:

- more than 310,000 households have received the service
- this represents approximately 20% of residential households
- of these, 43% of participants received the service for free
- approximately 20% of participating households have installed more than one showerhead
- in 2004-05 more than 40,000 retrofits were completed, 41% received the service for free and 24% of customers installed a second showerhead
- approximately 367,000 AAA showerheads have been installed
- residential water use has been reduced by 6.5 billion litres per year as a result of the program

Other benefits from the program include:

- increased customer awareness of water conservation
- reduction of flows into the sewer system
- estimated reduction in greenhouse gas emissions of over 1 million tonnes per year due to reduced hot water use and water supply pumping
- \$30-\$100 per year saving in water and energy charges for a participating household, depending on whether a household has an electric, gas or solar hot water system.

WaterFix remains one of the most cost effective and practical programs to achieve sustained reductions in residential indoor water use.

In 2004-05 the program was successfully introduced to 17 suburbs around Sydney with an average 21% uptake rate leading to the installation of 7,831 retrofits. It is estimated that during 2004-05 this program saved over 100 million litres of water. In addition to conserving water, DoH tenants will save money on their water and energy bills. It is expected that 25,000 DoH homes will have been retrofitted by mid 2006.

The 2006 *Progress Report* announced that an additional 50,000 DoH homes and units will receive a retrofit by 2008, bringing the total number of public housing properties receiving this service to 75,000. Estimated water savings for the Program are 1.5 billion litres per year by 2015.

Do-It-Yourself Water Saving Kit

To complement and build on the savings achieved through WaterFix, Sydney Water is offering every household a free 'Do-It-Yourself' (DIY) Water Saving Kit to enable householders themselves to make taps and showers in their home more water efficient. The DIY kit is quick and easy to install, and enables each household to save approximately 16,000 litres of water each year.

The DIY Water Saving Kit was developed as an alternative to Sydney Water's long-running, full service WaterFix Program. The kits provide householders with the opportunity to upgrade their existing inefficient showerheads and taps so that they provide a similar flow rate to fully accredited 3-star (or AAA) water efficient models, and provides easy access to water efficiency for those households who would prefer not to engage a plumber to do the work.

Department of Housing Retrofit Program

The Department of Housing (DoH) manages approximately 88,000 public housing properties in the Sydney metropolitan area making it a significant property owner. Approximately 6% of residential water use occurs in public housing, accounting for 3.5% of total water demand in Sydney.

The DoH Retrofit Program was launched in November 2004. The service offered under the Program is similar to that provided by Sydney Water's WaterFix Program. The retrofit includes the installation by a qualified plumber of 3-star (or AAA-rated) showerheads, tap-flow regulators and toilet cistern flush arrestors, and the repair of any minor leaks. The full service is offered free to DoH tenants.



The Do-It-Yourself Water Saving Kit

The DIY kits are packaged with illustrated instructions and are simple to install, requiring only basic tools and skills. The kit contains two flow regulators (9 litres per minute) for showers, two flow regulating aerators (6 litres per minute) for bathroom basin taps and one flow regulating aerator (9 litres per minute) for kitchen taps.

By February 2006, over 18,000 customers had collected their kits from the authorised outlets. A total of 37,000 kits are projected to be distributed by June 2006. A further 85,000 kits are projected for distribution in 2006–07.



Further information on the DIY Water Saving Kit is available at www.sydneywater.com.au/SavingWater/WaterRestrictions/DoItYourselfKit.cfm

6.6.6 Rainwater Tank Rebate Program

Rainwater tanks are an effective way to take the pressure off limited water resources, and at the same time, help manage stormwater runoff. Storing rainwater runoff from roofs can provide water for flushing toilets, washing clothes, watering gardens and washing cars.

The Rainwater Tank Rebate Program is designed to encourage Sydney's existing residential and business customers to install rainwater tanks. The program offers rebates ranging from \$150 for a 2,000 litre capacity tank to \$500 for tanks with a capacity equal to or greater than 7,000 litres. An additional \$150 rebate is available if a licensed plumber connects the tank for indoor use to supply washing machines or toilets. The rebate for installing tanks will be available until July 2008.



Since the Rainwater Tank Rebate Program was launched in 2002, the number of rebates received has steadily increased to an average of 1,050 per month. Around 20,800 rebates have been paid, and the program is estimated to have reduced demand by 760 million litres per year, or an average of 40,000 litres per year for each rebate. The Program has also provided significant education for the community, and assists in further diversifying the water supply.

Rainwater tanks can make a useful contribution to Sydney's water supply, however they are more expensive per litre of drinking water saved than many other measures to reduce demand and increase supply. For example, if one third of Sydney's existing detached dwellings (say 665,000 homes) were provided with a 5,000 litre rainwater tank for use in the laundry, toilet flushing and garden, the savings would be significant at 50 billion litres per year, however the cost would be around \$2.3 billion. This is a much more expensive way to save water on a large scale than mass recycling schemes, such as dual reticulation in new suburbs.

Nevertheless, rainwater tanks can play a role in saving Sydney's precious drinking water, can save householders money through lower water bills, capture stormwater at its source and help raise awareness of the importance of water conservation.



More information on rainwater tanks in homes can be found at: <http://www.sydneywater.com.au/SavingWater/RainwaterTanks/Rebates.cfm>



Rainwater tanks can be a useful way to provide water for the garden, clothes washing and flushing the toilet.



The Rainwater Tank Rebate Program is projected to save around 2.1 billion litres of drinking water each year, by 2008.



The residential landscape assessment program is projected to save around 2.7 billion litres of drinking water each year, by 2015.

6.6.7 Outdoor water use

In an average year, residential outdoor water use such as garden watering and car washing accounts for about 19% of total demand for drinking water in Sydney, almost as much as that used by commercial and industrial premises combined. Garden water use in the residential sector can vary from about 70,000 litres per year for an average household to as much as 500,000 litres per year for those in the top 20% of residential water users.

As garden water use is such a large component of demand, even relatively minor changes in the way Sydneysiders use water can result in significant water savings. Through the implementation of various initiatives, there are significant opportunities to reduce this usage.

Ongoing outdoor water saving measures

The community has made significant water savings by adopting sensible outdoor water use practices in the current drought. Such practices include watering gardens in the cool of the morning or evening to reduce water loss through evaporation using brooms instead of hoses to clean paved surfaces and washing cars with buckets.

If such commonsense and practical behaviours were to continue to be widely practised after the drought has ended, a significant amount of water could be saved each year. Experience in other states suggests that governments can encourage sensible outdoor water use in non-drought periods. At the end of this drought in Sydney, the Government will review the experience of outdoor water savings and consider how to build on it to encourage ongoing water saving behaviours.

Gardening water efficiency guidelines

The 2004 *Metropolitan Water Plan* included the development of water efficiency guidelines to help gardeners design, create and maintain gardens with low ongoing watering needs. In October 2005, Sydney Water published these guidelines including 'recipe cards' for popular garden styles. The guidelines, in the form of an easy-to-read booklet, are available for free at most nurseries and are complemented by Sydney Water's web-based plant selector. With 1,000 popular plants, including trees, shrubs and ground cover on the site, Sydneysiders can obtain information about ongoing watering needs to help reduce their outdoor use.



The recipe cards and further information on the plant selector can be found at <http://www.sydneywater.com.au/SavingWater/PlantSelector/>

Residential Landscape Assessment Program

The Residential Landscape Assessment Program aims to reduce residential outdoor water use in targeted high water using properties through behaviour change by providing landscape and irrigation advice and adjustments to irrigation systems.

In 2004-05, over 1,400 residential gardens received comprehensive landscape assessments to determine their specific irrigation needs. This included issuing 'Tap Tags' to remind the gardener of the appropriate irrigation frequency and duration.

The program will be further developed over time with approximately 500 additional assessments being conducted by mid 2006. The aim is to achieve a 15% saving in outdoor use for the participating properties and, subject to analysis confirming achieved outcomes, the program will expand to target 40,000 properties by 2010.

Smart Approved WaterMark

To assist gardeners to make informed decisions about outdoor water using equipment and approaches, the Smart Approved Watermark (SAWM) scheme was established in 2003. The SAWM was developed and funded the Water Services Association of Australia (WSAA), the Irrigation Association of Australia (IAA), the Australian Water Association (AWA) and the Nursery and Garden Industry Association.

The objective of the scheme is to reduce water consumption by recognising products, services and organisations that will contribute to reductions in outdoor water use and to promote the adoption of proven water smart technology. Endorsed products, services and organisations can then use the scheme logo for water saving recognition and marketing purposes. It is a useful outdoor partner to the Water Efficiency Labelling and Standards (WELS) Scheme for indoor fittings and appliances (see section 6.6.3).



**Smart
Approved
WaterMark**



Information on the scheme and the latest list of endorsements can be found at www.wsaa.asn.au/smartwatermark

What will be done next

- The Water Savings Fund will continue, with an extra \$10 million available in 2006
- Water Savings Action Plans will have been completed by businesses and government by mid 2006 for implementation over the next four years
- A \$150 washing machine rebate will be provided to Sydney residents who purchase an efficient washing machine until February 2007
- WELS will become mandatory from July 2006 and NSW will lobby for the national introduction of minimum standards
- BASIX will be rolled out for alterations and additions from 1 July 2006
- The NABERS HOME Water rating tool will be released in mid 2006
- Under a newly expanded WaterFix Program an additional 50,000 Department of Housing dwellings will have water efficient fittings installed, bringing the total number of houses serviced across Sydney to 550,000 by 2008
- A new program for leakage reduction in schools will be piloted
- New reasonable use guidelines for river and groundwater use by households will be released
- Further analysis of demand trends and ongoing monitoring of population growth and demand will be undertaken
- The potential impacts of climate change on water demand will be analysed
- Further measures to improve government water efficiency will be undertaken
- Rainwater tank rebates for households will continue to be offered until July 2008
- The Every Drop Counts Business Program will continue to help business and government to make significant water savings
- Sydney Water's Leak Reduction Program will continue
- An enhanced metropolitan water education program will increase awareness of the need for continued water saving efforts.