

Water savings

The NSW Climate Change Fund provided \$123 million to help households, businesses, community groups and government save an estimated 19.8 billion litres of water and \$49 million in water bills a year, through 607 projects, 141,104 residential rebates and 18,855 public housing retrofits.





Water savings for households

With \$53.2 million support from the NSW Climate Change Fund, more than 150,000 NSW households are saving an estimated 5.2 billion litres of water and \$10 million off water bills a year.

Achievements

To make their homes more water efficient, 141,104 households have taken advantage of NSW Home Saver Rebates for rainwater tanks, water efficient washing machines, dual flush toilets and hot water circulators.

One in three rainwater tanks installed in NSW are now connected to toilets and/or washing machines, compared to almost one in six in 2007.

Water savings for NSW Home Saver Rebates are shown in Table 9 below.

A total of 11 water saving projects for households are being implemented, with \$3.8 million funding under the Central Coast Water Savings Fund and the former Water Savings Fund (within Sydney). The projects include installing water efficient fixtures, harvesting rainwater with rainwater tanks and using alternate water sources for laundries, gardens and toilets. These projects will help save 269 million litres of water and more than \$556,000 in water bills each year. Nine of these projects have already been completed (to 30 June 2011).

More than 18,000 public housing residents have had their homes fitted with water saving tap valves and showerheads to save an estimated 394 million litres of water and \$788,139 in water bills a year.

Sydney Water's demand management initiatives for households are delivering additional savings under the Fund, including WaterFix Residential Retrofits, DIY Water Saving Kits, Love Your Garden and other education campaigns. Visit www.sydneywater.com.au for more details.

Table 9

Water efficient NSW Home Saver Rebates (to 30 June 2011)

Rebate	No. of rebates	Estimated savings (ML/yr)	Estimated bill savings (\$/yr)
Rainwater tanks	48,629	2,188.3	4,376,610
Washing machines (ended on 30 June 2010)	76,632	1,839.2	3,678,336
Dual flush toilets	15,829	395.7	791,450
Hot water circulators	14	0.2	476
Total	141,104	4,423.4	8,846,872

■ CASE STUDY

Households get cash back to half flush

Single flush toilets are one of the biggest water wasters in the home, using 12 litres of drinkable water with every flush, even when a full flush isn't needed.

The NSW Climate Change Fund's Dual Flush Toilet Rebate program began on 15 January 2010, offering \$200 cash back to households replacing a single flush toilet suite with a new dual flush toilet suite that has a minimum 4-star Water Efficiency Labelling and Standards (WELS) rating.

Installing a dual flush toilet suite with a 4-star WELS rating can reduce water use for a full flush to four and a half litres – three litres for a half flush – saving around 25,000 litres of water a year.

More than 15,800 NSW households received dual flush toilet rebates from 15 January 2010 to 30 June 2011, totalling \$3.1 million and saving an estimated 395 million litres of water a year.

The rebate program has also encouraged manufacturers to make more 4-star WELS-rated dual flush toilet models available. There has been a noticeable increase in the number of low-cost dual flush toilet models available to NSW households. The rebate program ended as scheduled on 30 June 2011.





Water savings for businesses

The NSW Climate Change Fund has provided NSW businesses with \$31.6 million for 63 water saving projects, to save an estimated 11.5 billion litres of water and \$31.3 million off water bills a year.

Achievements

These water saving projects for businesses are being implemented with funds allocated under the Green Business Program, the Central Coast Water Savings Fund and the former Water Savings Fund (within Sydney). To 30 June 2011, 45 of these 63 projects have already been completed.

A range of stormwater and rainwater harvesting, water recycling, groundwater use and water efficiency projects are being funded, including water recovery and reuse from industrial processes and equipment, and using water efficient devices and equipment.

Water savings by project type are shown in Table 10 below.

Water Savings Action Plans have been prepared by 220 business sites in the Sydney Water area that use more than 50 million litres of water a year. Of the cost-effective measures identified in these plans (with estimated water savings of 6.5 billion litres), 53 per cent have already been implemented, with estimated savings of \$9.5 million on water bills each year.

Commonly implemented measures include alternate water supplies (waste and industrial process recovery, rainwater harvesting, water recycling and bore water use) and optimising industrial processes.

The first round of the Recycling and Stormwater Harvesting Program, administered by the Metropolitan Water Directorate within the Department of Finance and Services, ran in late 2010, with four business facilities projects offered a total of \$1,495,913 to save an estimated 678 million litres of water a year.

Sydney Water's Every Drop Counts Business Program, funded from the NSW Climate Change Fund, is delivering additional water savings. Visit www.sydneywater.com.au for more details.

Table 10

Business water saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011)

Project type	No. of projects	Funding allocated (\$)	Estimated savings (ML/yr)	Estimated bill savings (\$/yr)	Cost-effectiveness (\$/(kL x 10 yrs))
Recycling	31	20,807,808	9,201	24,956,680	0.23
Harvesting	11	2,175,190	179	468,432	1.21
Efficiency	20	6,933,765	2,003	5,390,899	0.35
Groundwater	1	1,661,507	160	437,600	1.04
Total	63	31,578,270	11,543	31,253,611	0.27

Table note: does not include power saving projects with associated water savings

■ CASE STUDY

Woolies saves thousands on water bills

Australia's largest supermarket chain Woolworths Limited has used \$150,000 from the Central Coast Water Savings Fund to implement a rainwater harvesting project at its Wyong Regional Distribution Centre, located on the NSW Central Coast.

The Woolworths Wyong Regional Distribution Centre supplies groceries to a number of stores in the local area. The centre has a constant and high water demand to operate its bank of onsite cooling towers.

Four 260,000 litre water tanks have been installed to harvest rainwater from the centre's expansive flat roof for reuse in the cooling towers. Captured water is also used for toilet flushing and site irrigation, as well as emergency use for the local Rural Fire Service.

An estimated 20.8 million litres of potable water is being saved, captured and reused each year at the site. The project has also reduced water costs by almost \$20,000 in the first year.

Woolworths Environmental Manager Kane Hardingham said that by harvesting rainwater, the distribution centre can reduce its potable water demand and guarantee a sustainable water supply.

"Woolworths has made a public commitment to reduce water use in its facilities and this project contributed to our overall water savings of 342 million litres," he said.

This project is one of three rainwater harvesting projects Woolworths has implemented nationally.



■ CASE STUDY

Snack Brands slashes water use

Arnott's Snack Brands Australia has saved over 54 million litres of drinking water a year by installing recycling technology to treat and reuse wastewater at its Smithfield factory.

Snack Brands Australia is one of the largest suppliers of snack foods in Australia and includes the brands Thins, Samboy, CC's, French Fries and Cheezels.

A \$925,000 grant from the NSW Climate Change Fund enabled Arnott's to reuse potato washing water. Used water is filtered through a membrane and treated with an antimicrobial biocide, so it can be returned to production for reuse.

Michael Brotherton, Waste and Environmental Coordinator at Arnott's Snack Brands Australia said that the project is helping the company achieve its Australia-wide target of reusing more than 90 per cent of the water used in its production operations.

"This project has helped our Smithfield factory save water, and helps meet our economic and environmental objectives," he said.

Further water savings are expected at the Smithfield factory through improved water treatment and plant operation.



Water savings for communities

The Fund provided \$15.3 million for 245 water saving projects to help community groups save an estimated 14 billion litres of water in the first 10 years, and \$3.5 million in annual water bills.

Achievements

A total of 245 water saving projects for community groups are being implemented with funds from the Public Facilities Program, the Central Coast Water Savings Fund and the former Water Savings Fund (within Sydney). To 30 June 2011, 141 of these projects have already been completed.

Up to \$40,000 was available for community organisations to implement simple, low-cost energy and water upgrades in

their facilities. Funded water saving projects include upgrading and retrofitting bathroom amenities, installing rainwater tanks and recycling water for irrigation. Organisations undertaking these projects include pre-schools, aged care groups, sport and recreation clubs and disability and support services.

Demonstration projects are being implemented in larger public facilities, including community halls and leisure centres. Funded projects include upgrading taps and toilets, harvesting rainwater, recycling water for irrigation and installing rainwater tanks. Other demonstration initiatives include practical workshops and events, educational brochures, signage and websites.

Water savings by project type are shown in Table 11 below.

Visit www.environment.nsw.gov.au/grants/ccfund.htm for details of water saving projects funded under the NSW Climate Change Fund.

Table 11

Community water saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011)

Project type	No. of projects	Funding allocated (\$)	Estimated savings (ML/yr)	Estimated bill savings (\$/yr)	Cost-effectiveness (\$/(kL x 10 yrs))
Recycling	13	5,229,863	772	2,058,451	0.68
Harvesting	161	6,539,977	383	944,793	1.71
Efficiency	69	3,018,404	110	230,140	2.75
Groundwater	2	498,720	38	86,333	1.32
Total	245	15,286,964	1,303	3,319,717	1.17

Table note: does not include power saving projects with associated water savings.

■ CASE STUDY

Bowling Club cuts dependence on town water

The Robertson Bowling Club is the prime social and sporting club in the picturesque Southern Highlands village.

A \$172,000 NSW Climate Change Fund grant has helped the club replace the grass bowling green with an artificial woven surface to reduce the need for watering. The club has also installed waterless woks that could reduce the club's water use by up to 90 per cent, and four 10,000 litre tanks to collect rainwater for use in toilets and urinals. Ten single flush toilets have been replaced by dual flush models.

With estimated water savings of around 800,000 litres a year, the project will reduce the club's reliance on town water by around 75 per cent and make at least an additional \$15,000 available to support other community projects.

Club President Warrick Mitchell said that the original bowling green was costing at least \$50,000 each year in water, chemical and maintenance costs.

"When the original project was being compiled, it was immediately clear that other benefits could be derived from the collection and storage of rainwater and the proper use of that water," Warrick said.

The new green can be used more often, due to fewer maintenance requirements and quicker drainage after rainfall. Local schools can now pursue bowling as a sporting option.

The first of its kind in the district, the project has been getting a lot of attention from bowlers and non-bowlers. "I would not be surprised to see many smaller bowling clubs follow our lead in having a synthetic green for both environmental and financial reasons," Warrick said.

The club has also organised an environmental art competition for local schools to help spread the message about the water saving project.



■ CASE STUDY

Community benefits from reusing groundwater

Cumberland Country Golf Club, at Greystanes in Sydney's west, has secured a reliable water source by reusing groundwater from a local quarry, saving an estimated 55.9 million litres of drinking water each year.

With a grant of \$398,250 from the NSW Climate Change Fund, the club installed a pumping station at the nearby Boral quarry and laid a four kilometre pipeline to reuse the groundwater at the site.

The club first took action on water use when its financial viability was threatened during a drought and subsequent water restrictions. General Manager Ian Cottle said the course was deteriorating due to the lack of water, and the club was losing members.

"We didn't have access to water other than the mains supply and the onsite dams only provided about 30 per cent of our water needs," Ian said.

"The Board decided to undertake an extensive water resources study to find out how we could fix the problem."

The study identified ways to improve the storage of water onsite and how to control usage. The club also completed a Water Savings Action Plan, which identified 700,000 litres of water savings that could be made at the clubhouse and in the greenkeeper's shed.

After an extensive search to find alternative water sources, the club discovered the nearby Boral quarry was discharging approximately 2 million litres of useable groundwater each day into a local creek. It decided to build a pipeline to redirect this water.

According to Ian, the pipeline project has helped secure the club's future by providing a reliable water source, as well as benefiting the local community.

"We were able to build the pipeline to also provide irrigation for the council's local parks and Greystanes Primary School," he said.

"It's great for our club to work with industry, council and government in such a positive way to benefit the community and solve a number of water issues.

"We have learnt firsthand how a lack of water can affect community facilities and an asset such as a golf course.

"The Board now regularly reviews the club's water usage and we have developed policies relating to water use and its conservation."



■ CASE STUDY

University tackles high water use

The University of New South Wales (UNSW) received \$131,065 from the NSW Climate Change Fund's Public Facilities Program to roll out water saving initiatives at its Kensington campus.

UNSW is considered one of Australia's largest research institutions and provides tertiary education to over 50,000 students. It took action to reduce water consumption after being identified as one of the top water users in NSW.

The university identified numerous water saving actions after completing a Water Savings Action Plan in 2007.

UNSW is now saving an estimated 7 million litres of drinking water at the Lifestyle Centre, which has 40,000 visitors each month. The project has a payback period of less than 18 months.

Ray Filetti, Energy Manager at UNSW, said that because of the activities carried out in the Lifestyle Centre, it is one of the more water intensive buildings on the Kensington Campus.

"The centre operates a pool, gymnasium and squash courts for student, teacher and community use," he said.

To save water, an ultraviolet water treatment system was installed, as well as shower timers, waterless urinals and sensor taps. A solar-boosted gas hot water system and a thermal cover on the pool's sand filter also reduce energy use, and water pipes have been modified to reduce wastewater.

UNSW has installed a series of interactive touchscreens, storyboards and instruction signs to engage and educate the Lifestyle Centre's patrons. Ray encourages anyone taking on a sustainability project to engage with their stakeholders and the community.

"Probably one of the biggest lessons learned is the impact that patron behaviour has on the final energy and water savings," he said.



The university has continued to save water by implementing the Borewater Treatment Plant project, also at the Kensington campus. The project was also identified under the Water Savings Action Plan and was supported by \$747,000 from the NSW Climate Change Fund's Water Savings Fund.

Reusing collected and treated groundwater in the UNSW laboratories is also saving more than 82 million litres of drinking water a year.

A 10 kilowatt photovoltaic system has also been installed on the roof of the swimming pool building to offset the energy use by the new ultraviolet water treatment system. It has generated more than 18,000 kilowatt hours of energy since January 2010.

■ CASE STUDY

Children help look after our environment

SDN Children's Services (SDN) provides early childhood learning services for children from birth to five years of age.

The not-for-profit organisation received \$40,000 from the NSW Climate Change Fund to upgrade inefficient tapware with sensor taps and old cisterns with modern, water efficient systems, to save 900,000 litres of water a year.

Carol Soleymanbik, Centre Director at SDN, said that dripping taps and the water wasted through inefficient toilet cisterns had been a concern.

"The children were not able to securely turn the old taps off, but once the new sensor taps were installed the children were intrigued," she said.

"We also taught them about using the half and full flush on the new toilets.

"The sensor taps have the additional benefit of further improving the infection control measures already in place."

SDN has expanded its sustainability learning to include reducing food waste. A kitchen garden is being added to the centre, equipped with a compost bin and worm farm.

Water savings for government



The Fund has provided \$22.8 million for 288 water saving projects to help local government, state government and schools save an estimated 17 billion litres of water in the first 10 years, and \$4.3 million in annual water bills.

Achievements

These 288 water saving projects are being implemented with funds allocated under the Public Facilities Program, the Central Coast Water Savings Fund, the former Water Savings Fund (within Sydney) and the Rainwater Tanks in Schools Program. To 30 June 2011, 45 of these projects have already been completed.

Water Savings Action Plans have been prepared by 44 councils and 34 government sites in the Sydney Water area that use more than 50 million litres of water a year. Cost-effective measures identified in these plans would save 1.8 billion litres of water if implemented. Twenty-eight per cent of these measures have been implemented, saving an estimated \$1.4 million on water bills a year. Commonly implemented measures include upgrading and retrofitting amenities, monitoring leakage, harvesting rainwater and improving the efficiency of irrigation systems.

The Rainwater Tanks in Schools Program provided 218 schools with funding to install rainwater tanks. The Fund also provided an additional 182 schools across the state with funding for water

audits and monitoring, and for installing water efficient taps, bubblers, bubbler cages and dual flush toilets.

Sydney Water's Every Drop Counts Schools Program is delivering additional water savings. Visit www.sydneywater.com.au for more details.

The Recycling and Stormwater Harvesting Program, which is administered by the Metropolitan Water Directorate within the NSW Department of Finance and Services, provides \$13 million to support potential recycled water suppliers, distributors and customers to help them develop localised recycling and stormwater harvesting schemes. The first round of the Recycling and Stormwater Harvesting Program ran in late 2010, with funding totalling \$3,853,300 offered to six projects at local council owned parks, reserves and sports fields, to save an estimated 319 million litres of water a year.

Government water savings by project are shown in Table 12.

The NSW Government's Water for Life Education Program, coordinated by the NSW Office of Water, receives \$2 million a year from the NSW Climate Change Fund. This program delivers and coordinates social marketing campaigns, on-the-ground water education projects and community consultation, and provides training and resources for councils and non-government organisations.

Visit www.waterforlife.nsw.gov.au for more information on this program.

Table 12

Government water saving projects estimated savings and cost-effectiveness by project type (to 30 June 2011).

Project type	No. of projects	Funding allocated (\$)	Estimated savings (ML/yr)	Estimated bill savings (\$/yr)	Cost-effectiveness (\$/(kL x 10 yrs))
Local government	53	13,839,485	1,145	2,936,053	1.21
State government	6	1,303,459	101	274,342	1.29
Schools	229	7,642,102	397	1,056,828	1.92
Total	288	22,785,046	1,643	4,267,223	1.39

Table note: does not include power saving projects with associated water savings.

■ CASE STUDY

Greening Sydney's north

Ku-ring-gai Council, located in Sydney's north, has received \$1.43 million for three water saving projects in its local government area – Roseville Chase Oval, Gordon Golf Course, and St Ives Showground and Nursery – to save up to 138 million litres of water a year.

The Roseville Chase Oval project received \$112,900 to install underground drainage. Excess water from irrigation and rainfall is now directed to a dam located on the neighbouring golf course. A storage tank and reticulation system have been installed so the collected water can be used to irrigate the oval and flush the toilets.

The community now enjoys an improved playing surface with higher availability as a result of improved drainage. The council is saving 2.7 million litres of water a year and has virtually eliminated using drinking water for irrigation at the site.

St Ives Showground and Nursery received funding of \$488,600 to deliver treated water for reuse through a leachate treatment plant and reticulation network.

The showground and nursery is saving 11 million litres of water a year by collecting leachate from a disused green-waste tip, and reusing it for toilet flushing and irrigation. The treatment plant also provides a solution to the disposal of leachate.

Ku-ring-gai Council's Environmental Engineer Jay Jonasson said the council is already benefiting from these water saving projects.



"Having access to an alternative water supply ensures that we can keep our community facilities in good condition without using precious drinking water," Jay said.

The council's third project, received \$831,500 in funding to construct a sewer mining plant at Gordon Golf Course. Sewage from under the golf course will be extracted and treated through a membrane bioreactor and reused to irrigate the course. The project, which is in its final stage of completion, could save up to 125 million litres of water a year.