Minimising climate change impacts and encouraging sustainability

Contributing to State Plan priorities

DECC is the lead agency for:
- Priority E3: Cleaner air and progress on greenhouse gas emissions
- Priority E4: Better environmental outcomes for native vegetation, biodiversity, land, rivers and coastal waterways

DECC is a partner agency for:
- Priority E1: A secure and sustainable water supply for all users
- Priority E2: A reliable electricity supply with increased use of renewable energy

Planned DECC corporate outcomes

- Greenhouse gas emissions reduced
- Effective adaptation by NSW to likely climate change effects
- Energy, water and materials used efficiently with less waste
- Sustainability reflected in business and government decisions and actions, with resulting cost savings

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Photo: Bob Peters Imaging

2.1 Reducing greenhouse gas emissions

It is clear that greenhouse gas emissions from human activities are causing global warming and climate change. Increased average temperatures and sea levels, and worldwide increases in the frequency and severity of storms, flooding and droughts have already been observed.

The CSIRO and Bureau of Meteorology have undertaken projections that found, that without action to limit emissions, NSW can expect increased temperatures of 0.2–2.1 degrees Celsius over the next three decades, and of 0.7–6.4 degrees Celsius by 2070, and decreasing annual average rainfall. A two-degree Celsius temperature rise is likely to significantly affect human populations, water supplies, agricultural yields, biodiversity and land use. A temperature rise of over two degrees Celsius increases the risk of severe impacts.

On 27 April 2007, the former NSW Greenhouse Office became part of DECC. DECC now leads the state's response to climate change by coordinating and developing NSW Government policies to reduce greenhouse gas emissions and adapt to climate change. DECC manages the Climate Change Fund and coordinates NSW Government actions to meet the key emission reduction targets in the **NSW Greenhouse Plan**. To view the NSW Greenhouse Plan, visit www.greenhouse.nsw.gov.au/ climate_change_in_nsw/ greenhouse_plan.

2.1.1 NSW Government initiatives

NSW State Plan

The NSW State Plan outlines clear accountabilities and actions for reducing greenhouse gas emissions over the next 10 years. DECC is the lead agency for *Priority E3: Cleaner air and progress on greenhouse gas emissions*. The targets are to reduce greenhouse emissions by 60% by 2050, and to return to year 2000 greenhouse gas emissions by 2025. To meet these targets, DECC plans to:

- improve forecasting data and methods to measure abatement of climate change impacts
- create an accountability framework to drive emission reduction
- identify and cost opportunities to meet the targets
- improve information about the economic impacts of a transition to a low carbon future by 2025 and 2050.

Climate Change Fund

In February 2007, the NSW Government announced the establishment of a Climate Change Fund of $340 million over five years. The Climate Change Fund will incorporate the Water and Energy Savings Fund (see page 22) and Climate Action Grants Program. Funds will be distributed as follows:

- $100 million for a Residential Rebate Program for hot water systems, insulation and rainwater tanks
- $100 million for a Recycling and Stormwater Harvesting Program to assist in implementing the Sydney Recycled Water Grid
- $40 million for a Renewable Energy Development Program to support the commercialisation of proven technologies such as solar power
- $30 million for the Public Facilities Program, to provide grants to government agencies, and educational and community organisations, for energy and water savings projects
- $20 million for the School Energy Efficiency Program to upgrade lighting and implement student-based energy efficiency projects
- $20 million for the Rainwater Tanks in Schools Program
- $30 million for the Green Business Program.

2.1.2 Emission reduction

DECC coordinates and delivers programs to reduce greenhouse gas emissions (see page 19), and these are complemented by other state and national initiatives.

A national emissions trading scheme

In 2004, state and territory governments established the **National Emissions Trading Taskforce** (NETT) to develop a national emissions trading scheme. Such a scheme could:

- enable Australia's economy to use less carbon
- link Australia to international carbon markets
- create a market for flexible and low cost options for reducing greenhouse gas emissions, which would encourage the adoption of innovative technologies.

A scheme which contains caps and long-term targets would reduce investor uncertainty by estimating the price of carbon over time.

In August 2006, NETT released a discussion paper which set out a potential design for the scheme, and sought comments on ways of minimising impacts of the scheme on regional areas and energy-intensive industries. Over 130 submissions were received and forums were held to discuss the detailed design and gain stakeholder involvement in the process.

DECC provides secretariat support for NETT and is playing a leading role in progressing the scheme.

In May 2007, the Prime Minister made a commitment to establish a national emissions trading scheme in Australia by 2012. The proposed scheme largely reflects the proposal put forward by the states and territories.

Reporting on greenhouse gas emissions

National Pollutant Inventory

The **National Pollutant Inventory** (NPI) is a national database that shows emission estimates for 93 toxic substances and the source and location of these emissions.

DECC was a member of the team which released a draft national environment protection measure and impact statement in June 2006, then consulted with the public and developed a proposal for discussion by the Commonwealth and State governments. The proposal recommended including greenhouse gas emissions reporting in the NPI as an interim measure to be activated on 1 July 2008 if the Commonwealth had not introduced national legislation by that date.

The Commonwealth legislated not to include reporting in the NPI in September 2007.

Greenhouse and energy reporting

The Council of Australian Governments (COAG) agreed in July 2006 to develop a single streamlined system that would impose the least cost and red tape on industry to report on greenhouse gas emissions and energy data. A **COAG Greenhouse and Energy Reporting Group** was formed to develop a proposal by December 2006 for national legislation to provide such a system. DECC was the group's NSW representative. The group prepared a draft regulatory impact statement, which was released for public comment in October 2006, and draft inter-government agreement for consideration by COAG. In September 2007, the Commonwealth Government passed the *National Greenhouse and Energy Reporting Act 2007* which establishes a national greenhouse gas emissions reporting system.

DECC programs to reduce emissions

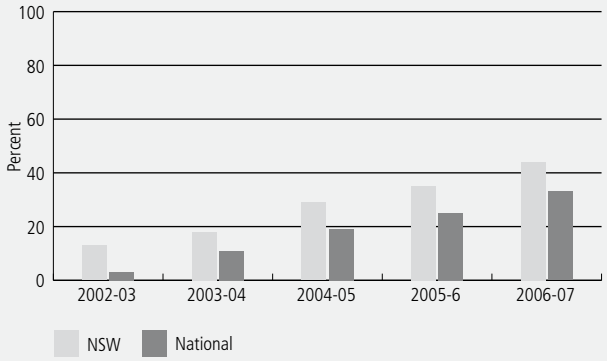
Protecting or regenerating native vegetation contributes to greenhouse gas reductions, while clearing native vegetation contributes to increasing greenhouse gas emissions. Around 7% of the total annual greenhouse gas emissions produced by NSW are caused by land use change. However, NSW has reduced its estimated emissions from deforestation from 30.5 million tonnes a year in 1990 to 10.4 million tonnes a year in 2005. See pages 65–66 for information on protecting native vegetation from broadscale clearing.

■ PERFORMANCE INDICATOR

Australian Building Greenhouse Rating – percentage of commercial market penetration

Definition: This indicator measures the proportion of the total national office market which has been rated using the Australian Building Greenhouse Rating Scheme (AGBR). ABGR measures the greenhouse gas emissions of a building compared with its peers, on a one- to five-star scale, with five stars representing best performance. Ratings are voluntary. ABGR is managed nationally by DECC.

Australian Building Greenhouse Rating – percentage of commercial market penetration



Interpretation: By 30 June 2007, 33% of the available office space in Australia and 44% of the office space in NSW had been rated using the ABGR scheme. This represents a significant increase since 2005–06, a 20% increase for NSW and a 24% increase for Australia, indicating that many buildings rated their greenhouse performance for the first time in 2006–07. On average, office buildings using ABGR to measure, manage and improve their greenhouse gas emissions are reducing their emissions by approximately 12%.

Many other DECC programs are reducing greenhouse gas emissions. For example, since 2002, DECC's **Industry Partnership Program** has provided matched funding to over 400 companies to reduce their use of resources and encourage industrial energy efficiency. To date, the program has delivered estimated savings of around 34,000 tonnes of carbon dioxide each year.

In October 2006 DECC launched **Sustainability Advantage**, a partnership with over 100 medium to large businesses, which replaces the Industry Partnership Program, and will encourage industry to reduce greenhouse gas emissions while adopting sustainable practices (see page 26).

Three- to five-year **Sustainability Compacts** have been established with large companies to implement joint projects to advance sustainability and reduce greenhouse impacts (see page 27).

DECC has also studied the technical and industrial feasibility of establishing a **Heavy Vehicles Benchmarks Program** (similar to the successful Clean Car Benchmarks Program) to provide an environmental rating scheme for heavy vehicles. DECC is working with the Commonwealth Department of Transport and Regional Services to develop a proposal for national consideration.

For information on energy savings plans, see pages 22–23.

Photo: M Lauder, DECC

2.2 Adapting to climate change

Adaptation to climate change is necessary, as some degree of climate change and resulting biophysical impact is now inevitable. In NSW, projections include potential higher temperatures, less rainfall, more frequent and severe droughts, more extreme storms, more frequent bushfires, and increases in coastal erosion and the number and variety of pests. Adaptation involves adjusting policies and operations to help prepare ecosystems, infrastructure and the economy to cope with the impacts of climate change. Adaptation measures minimise the risks and economic costs of adverse impacts and take advantage of potential benefits.

Climate Change Impacts and Adaptation Research Program

DECC received funding of approximately $2 million over four years for research programs under the NSW Greenhouse Plan's Climate Change Impacts and Adaptation Research Program. DECC projects under the program, presented at a NSW Climate Change Impacts and Adaptation Research Summit in February 2007, include:

- researching ways in which the severity and frequency of bushfires in the greater Sydney basin will be affected by climate change (joint project with the University of Wollongong)
- assessing the environmental and economic impact of potential coastal erosion, coastal inundation and degradation of estuaries due to climate change (see page 106)
- providing best available information for practical conservation planning and decision making
- developing a priority list of non-native plants and animals (including invertebrates) which could become invasive; modelling the likely impacts of changing climates on these species; and providing information on managing these species in the future

■ CASE STUDY

Understanding previous climate change events

A unique record of climate change covering the last 230,000 years is archived within the sediments of the Willandra Lakes in south-west NSW. The last 50,000 years of this record show human adaptation to climatic change. However, this record is being eroded by wind and water. In 2006–07, in partnership with three Aboriginal traditional tribal groups of the Willandra Lakes World Heritage Area (the Barkindji, Mutthi Mutthi, and Ngyiampaa groups) and four universities (the Australian National University, the University of Queensland, and La Trobe and Bond universities) DECC initiated a major research and monitoring project to study the sediments, to discover ways in which past climate change has affected the environment and to find out what technological changes were made by Aboriginal people in response to previous changes in climate. This project is funded by the Australian Research Council.

Methods being employed by the researchers include isotopic analysis, scientific dating, geo-radar studies, faunal analysis, thin section analysis of sediments and archaeological investigations. Two Aboriginal cultural officers trained in field archaeology and archaeological conservation techniques are carrying out regular monitoring.

Fieldwork commenced in June 2007 and the project will run until 2009.

Photo: DECC

Wind is eroding a unique record of climate change archived in the sediments of Willandra Lakes.

- focusing on ecological processes which are critical for threatened species' persistence in the landscape or their ability to move to new habitats, with the emphasis on species and communities already at risk
- assessing the effects of climate change on valuable inland aquatic ecosystems to provide information that will guide conservation priorities, improve resolution of land and water use conflicts and conserve assets of greatest long-term resilience and significance
- working with the Department of Primary Industries to develop guidelines for improved land management practices to improve the ability of soils to sequester carbon and help abate greenhouse gas emissions.

Adaptation and mitigation projects

DECC is also undertaking other adaptation and mitigation projects, including:

- determining the impact of climate change on ozone levels in urban areas
- assessing the effects of the existing climate on the composition of ecological communities, and relating these to future climate scenarios
- assessing the impacts of proposed structures such as seawalls, rising sea levels and warmer water on estuarine biodiversity
- measuring and monitoring the response of coastal wetlands to sea-level rise
- investigating ways in which ecosystems are connected and modelling how these connections might be altered by climate change
- measuring the water use (evapotranspiration) of, and impacts of groundwater on, terrestrial groundwater dependent ecosystems such as woodlands that have a seasonal dependence on groundwater
- researching the role played by climate and land management practices in relation to wind erosion by measuring dust emitted into the atmosphere
- conducting research and monitoring in the alpine area to study the effects of climate change on biodiversity and geomorphological processes.

Supporting the community to adapt to climate change

Between November 2006 and March 2007, the former NSW Greenhouse Office, with assistance from CSIRO, released brochures to provide information on **climate change in catchments** and its consequences for landowners and the general public. Brochures were produced for the Murrumbidgee, Namoi, Hawkesbury–Nepean and Sydney Metropolitan catchments. These brochures include climate change projections for the catchment, advice on practical adaptation measures, and contacts and sources for further information.

■ CASE STUDY

Connecting landscapes and ecosystems through the Alps to Atherton Initiative

In mid-2006, DECC proposed a long-term strategy for strengthening the resilience of Australia's native plants and animals to climate change through conserving, restoring and connecting landscapes and ecosystems for more than 2800 kilometres along Australia's great eastern ranges. The objective is to create a conservation corridor from the Australian Alps in Victoria to Atherton in far north Queensland, which will allow native plants and animals to move onwards and upwards in response to climate change impacts.

To achieve this objective, DECC needed the support of communities, agencies and governments in other states and territories. On 24 November 2006, the Alps to Atherton Initiative was endorsed by the Environment Protection and Heritage Council, and agreed to by the Commonwealth, NSW, Queensland, Australian Capital Territory and Victorian governments.

On 24 February 2007, the then NSW Minister for the Environment announced that the Environmental Trust would fund the NSW section of the Alps to Atherton Initiative.

Since then, DECC has created a Business Plan for NSW for 2007–2010, and has worked with partners in NSW, other states and nationally to achieve and co-fund the initiative. Scottsdale, a 1300-hectare property south of Canberra which contains critical platypus and native fish habitat, was acquired by the Australian Bush Heritage Fund in February. Two NSW partnership programs are being planned – a project connecting tablelands from the Australian Alps to the Great Escarpment (Kosciuszko to Coast) and a project to connect landscapes from the summit of Mt Kosciuszko to the grassy box woodlands on the south-west slopes near Albury (Slopes to Summit).

Photo: L. Broome, DECC

The Alps to Atherton Initiative will help animals with restricted habitats, such as the mountain pygmy possum which can only live in alpine regions, to survive the impacts of climate change.

Photo: SEDA

2.3 Using energy, water and materials efficiently with less waste

2.3.1 Energy and water savings initiatives

The programs supporting energy and water efficiency in the former Department of Energy, Utilities and Sustainability became part of DECC in April 2007.

In 2005, under the *Energy and Utilities Administration Act 1987*, the energy and water savings funds were established and large energy and water users were required to prepare savings action plans, which promote cost-effective actions to reduce energy and water use, thereby saving money, improving the supply-demand balance and reducing greenhouse gas emissions.

Energy savings

The **Energy Savings Fund** provides $200 million over five years for projects which will save energy and reduce peak electricity demand. Two funding rounds have occurred, which have allocated $28.3 million to 49 projects estimated to save 139,000 megawatt hours of electricity and more than 150,000 tonnes of greenhouse gas emissions a year. The fund also has a Public Facilities Program to support energy savings in public and educational facilities. Three projects have been approved under this program.

At 30 June 2007, 114 **energy savings action plans** had been approved by the Minister, with the remaining 160 plans expected to be approved later in 2007. Cost-effective opportunities identified in the approved plans total annual savings of 4.4 million gigajoules and 570,000 tonnes of greenhouse gas emissions.

Water savings

The **Water Savings Fund** provides funding to encourage water savings and recycling in Sydney Water's area of operations, and on the Central Coast.

From the three funding rounds which have occurred in Sydney, $55 million has been allocated to 99 projects estimated to save 12.6 billion litres of water a year. Under the first Central Coast funding round, almost $2 million was allocated to 17 projects, saving 355 million litres of water a year. Results of the second Central Coast funding round will be announced in July 2007.

At 30 June 2007, 128 **water savings action plans** have been approved, with the remaining 180 plans expected to be approved later in 2007. Cost-effective opportunities identified in the approved plans will result in total annual savings of 4320 megalitres of potable water.

The **Climate Change Fund**, which came into effect on 1 July 2007, replaces the Water and Energy Savings Funds, and will deliver programs to the value of $340 million over the next five years (see page 18).

Government agencies can also borrow money from the **NSW Treasury Loan Fund** to finance water and energy efficiency improvements. Loans are repaid from cost savings on water and energy bills. In 2006–07, $9,544,000 was lent for four projects. To the end of June 2007, 40 projects have been funded at a cost of $44,845,000.

National Australian Built Environment Rating System (NABERS)

NABERS rates the performance of offices and homes across Australia on a five-star scale. NABERS uses information about the environmental impacts of a building, such as water and energy bills, to establish its environmental performance compared with others of its kind. One star means the building has a very poor performance relative to peers, between two and three stars is average, and five stars represents an exceptionally efficient building.

NABERS HOME, launched in December 2006, is available on www.nabers.com.au. Through NABERS HOME, people can find out how energy and water efficient their home is compared to others, and explore ways of reducing their energy and water bills. Since the launch, more than 15,000 people have accessed the website. In 2006–07, DECC began developing more tailored advice for householders wanting to save energy and water in their homes.

NABERS OFFICE incorporates and builds on the Australian Building Greenhouse Rating (ABGR) scheme developed by the NSW Government and launched in 1999. Ratings for different environmental impacts are being built into NABERS OFFICE over time. The water rating was launched in April 2006. Ratings for waste efficiency and indoor environmental quality will be launched later in 2007.

NABERS OFFICE is being used on a voluntary basis to rate the environmental performance of office buildings throughout the country. At 30 June 2007:

- throughout Australia, including NSW, 486 buildings containing 6,852,000 m² of office space have been rated for energy efficiency, and 145 buildings containing 2,650,000 m² of office space have been rated for water efficiency
- in NSW, 258 buildings containing 3,370,000m² of office space in NSW have been rated for energy efficiency, and 80 buildings containing 660,000 m² of office space have been rated for water efficiency.

There are currently 226 industry-based accredited assessors undertaking NABERS ratings around Australia. In 2006–07, DECC trained a further 232 assessors.

DECC manages NABERS nationally with the support of Commonwealth, state and territory governments, and has begun to develop ratings for hospitals, schools, hotels and retail centres.

Grants for urban waterways

The **Urban Sustainability Program** funds projects of significant environmental benefit to NSW. Such projects are delivered by local government organisations in partnership with other government agencies, local businesses, community organisations and householders. During 2006–07, the first round of the Urban Sustainability Program resulted in 35 projects worth over $36 million being funded. Nineteen of these projects address aspects of urban water management, including:

- stormwater harvesting and reuse
- restoring flows in urban waterways to pre-urbanised rates
- reducing water quality impacts through identifying and changing poor stormwater management practices
- revegetating riparian corridors, creating opportunities for natural stormwater filtration
- rehabilitating wetlands, which are vital detention and filtration basins for urban runoff.

Photo: M. Van Eyck

Rainwater tank rebates are being increased under the NSW Government's Climate Change Fund.

■ **PERFORMANCE INDICATOR**

Savings action plans in force for energy and water

Definition: Under Part 6A of the *Energy and Utilities Administration Act 1987*, high energy and water users are required to prepare savings action plans to identify opportunities to save energy and water. This indicator measures how many energy and water savings action plans have been approved.

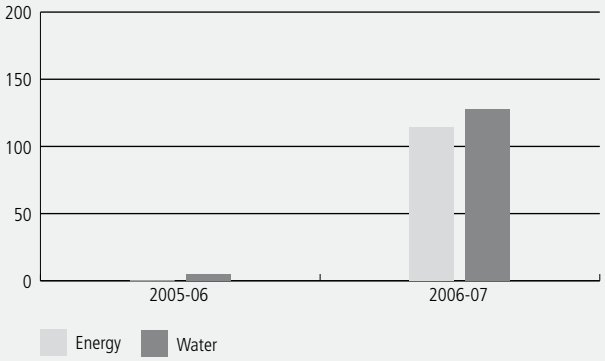
Energy savings action plans are required:

- for business and government sites using more than 10 gigawatt-hours per year in NSW
- from all local councils with populations of 50,000 or more.

Water savings action plans are required:

- for business and government sites using more than 50 megalitres per year in Sydney Water's area of operations
- from all local councils in Sydney Water's area of operations.

Savings action plans in force



Interpretation: Water savings action plans were required to be submitted by 31 March 2006 (30 June 2006 for hospitals) and energy plans before 30 June 2006. All these water and energy savings plans commenced on 30 June 2006. Plans were only approved if they met the guidelines gazetted by the Minister. If the plans were not adequate, the users had to submit revised plans. By 30 June 2007, 114 energy savings plans and 128 water savings plans were approved, indicating that businesses and governments are meeting their responsibilities in planning to reduce energy and water use.

2.3.2 Community education and support

DECC supports communities and individuals in adopting sustainable practices, and conducts and uses social research to develop and implement programs for different sections of the NSW community.

Community education

DECC's **Who cares about the environment in 2006?** survey, the fifth in 12 years, contains the largest and most comprehensive research findings on people's attitudes to environmental issues in Australia. Every three years, the surveys measure people's attitudes to, knowledge of, and skills and behaviour regarding the environment. The latest findings were launched in November 2006.

NSW residents care deeply about the environment and more people are now taking action to conserve water and energy. In 2006, people valued the environment highly as part of their lives and almost 90% were concerned about environmental problems, with water-related issues – water supply, conservation and management, and drought – being the top environmental issues, and climate change and energy issues growing rapidly in importance.

The NSW Council on Environmental Education launched ***Learning for Sustainability: NSW Environmental Education Plan 2007–10***, in November 2006. This three-year NSW Government environmental education plan was developed in consultation with a diverse range of stakeholders. The plan aims to identify roles for all stakeholders in achieving its outcomes, and to integrate environmental education into corporate policies and work practices.

Outcomes include improved integration of environmental education with other strategies to promote sustainable development, and improved access for the NSW community to environmental programs.

Photo: M. Van Ewijk

DECC's community education campaigns have encouraged people to save energy by, for example, hanging out washing rather than using a dryer.

Under the plan, DECC is responsible for implementing certain actions and providing environmental education products and services to meet the needs of the NSW community. In 2006–07, DECC promoted improved waste management and resource recovery through the Ethnic Communities Sustainable Living Project, and promoted ecologically sustainable decision making and living through the Integrated Sustainable Education Partnerships Program.

Ethnic Communities Sustainable Living Project

DECC works in partnership with the Ethnic Communities' Council of NSW and employs 18 bilingual educators to promote awareness, knowledge and understanding of living more sustainably to the largest ethnic communities in the Sydney Metropolitan Region and the Illawarra.

■ CASE STUDY

Waste as art

'Waste as Art' (WAA), initiated by the Hunter Waste Education Group in 2000, is an annual event which promotes the use of recovered waste in the creation of art. All entries in WAA are exhibited and some artworks are professionally photographed and used in educational activities. A survey has shown that WAA participants reduce, reuse or recycle waste at home or work as a result of their involvement.

In December 2006 'Waste as Art 2006', a partnership project between DECC and the councils of Newcastle, Maitland, Cessnock, Lake Macquarie, Port Stephens and Singleton, was the joint winner in the Waste Management Category in the Local Government and Shires Association's Excellence in the Environment Awards.

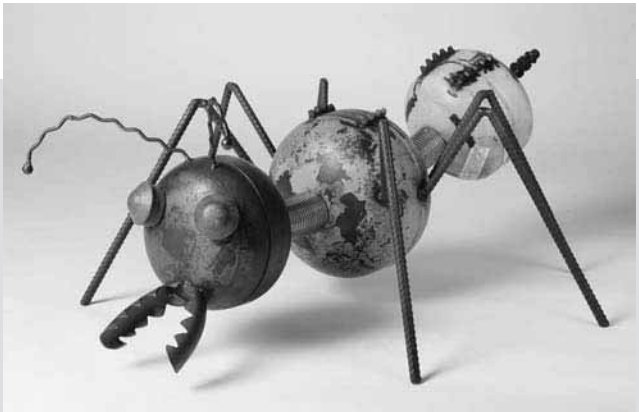


Photo: D. Osland.

This artwork by Brenden Ferris was Highly Commended by judges in the Hunter region's Waste as Art exhibition in December 2006.

The award recognised the achievements of the WAA project in encouraging innovative design and improving waste management attitudes and behaviours, and acknowledged the partnership between state and local governments.

In 2006–07, the bilingual educator team:

- distributed multilingual materials at 24 festivals to promote sustainable living to over 7200 people
- delivered 196 community workshops on sustainable living to 4458 people.

Through the Water for Life home water education project, 4458 people were encouraged to save water.

Sustainable schools

In 2006–07 DECC, in conjunction with the Department of Education and Training (DET) and the Catholic education system, continued work on the NSW Sustainable Schools Program. The program supports the development of school environmental management plans (SEMPs), which are required under the Environmental Education Policy for Schools. SEMPs involve students in learning about the sustainable management of waste, energy, water, biodiversity, transport and purchasing, and have led to school environmental audits, staff training and cooperation with local communities on environmental issues. DET estimated that 25–30% of schools now have SEMPs, reaching 180,000 students.

In 2006–07 DECC developed and trialled a sustainable schools website that will be launched in 2007–08 to assist all schools to develop SEMPs, and to report environmental data.

DECC is also running *Discovery* for Schools programs which focus on sustainability (see page 94).

Our environment – it's a living thing

The *Our environment – it's a living thing* (OEILT) community environmental education campaign entered its sixth year in 2007 and continues to increase environmental awareness and promote positive behaviour in the business sector, in communities, in local government areas and by individuals. The program encourages communities to adopt environmentally sustainable lifestyles at home, work and play.

For the past two-and-a-half years, DECC has been working in partnership with the Total Environment Centre, Australian Conservation Foundation, NSW Nature Conservation Council, the NSW Council of Social Services and the former Department of Energy, Utilities and Sustainability on the **Integrated Sustainability Education Partnership Program**, which concluded on 30 June 2007. Ten education projects were conducted, covering issues such as chemical use in the home, waste avoidance, energy and water conservation in low-income households and, for people from non-English speaking backgrounds, biodiversity education, community education and engagement, green purchasing, sustainable consumption, and sustainable practices for business.

Through the program, households reduced water and energy use, waste, greenhouse gas emissions, and environmental and health impacts from hazardous chemicals. Data supplied to the GreenHome project by 120 participants in Ryde and Strathfield indicated reductions of 16 million litres of water, 337,833 litres of household landfill waste, and 790 tonnes of carbon dioxide per year.

The **Local Council Partnership Program** enables councils, in partnership with state government, to implement sustainability education projects for their communities using the resources of OEILT. In 2006, 12 councils received funding for projects that will increase the community's knowledge of environment protection and sustainability.

The OELIT website (www.livingthing.net.au) has been further improved, and now features an expanded community education section, new resources from successfully completed partnership projects, and improved navigation and search facilities. Community education materials include information on new energy and water programs and rebates, air quality, sustainability programs to implement in neighbourhoods, and green purchasing and investments.

During 2006–07, the website received 54,000 visitors, with pages on water and energy actions in the home, and sustainable living tips in general, being the most popular.

The OEILT e-newsletter, *Living Sustainably,* has 6500 subscribers from community groups, universities, environmental education networks, local government, business, industry and interstate environmental agencies. Two issues were distributed in 2006–07.

Photo: SEDA

2.4 Business and government acting sustainably

2.4.1 Promoting the adoption and practice of sustainability as a core value by business

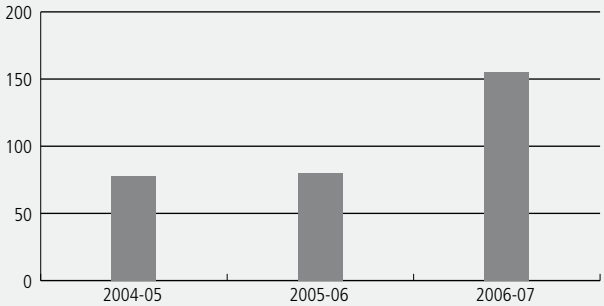
DECC works with businesses to achieve more efficient resource recovery and sustainability.

■ PERFORMANCE INDICATOR

Businesses participating in alliances with DECC to improve resource recovery and sustainability

Definition: This indicator measures DECC collaboration with predominantly medium to large businesses to enhance their environmental performance. While these partnerships focus on resource recovery, support is also provided in areas such as corporate planning, staff education and supply chain management. The indicator does not reflect the depth of the relationship, which may vary from networking to collaboration and full partnership.

Number of businesses participating in alliances with DECC to improve resource recovery and sustainability



Interpretation: The 2004–05 and 2005–06 figures represent the former DEC's engagement with businesses to improve resource recovery through the Industry Partnership Program, which involved 80 businesses in 2005–06. In 2006–07, 155 businesses have been involved. The resource efficiency work with business has been rolled into the new Sustainability Advantage program, which also addresses other sustainability issues. The most effective strategies for promoting organisational change include encouraging organisations to incorporate environmental action into business plans, ensuring all business areas (such as operations, marketing, and human resources) are involved, and working in geographic or sector-based clusters. Often this work is medium to long term and spans a number of years.

Sustainability Advantage

DECC initiated a new **Sustainability Advantage** program for medium and large organisations in October 2006. Sustainability Advantage helps organisations to take advantage of sustainability opportunities while adding value to their business. Senior managers evaluate current environmental performance, identify priorities and rank future initiatives. Areas evaluated include goal setting and business planning, risk management and environmental compliance, resource efficiency, the supply chain, staff training, external stakeholder engagement, and responding to climate change.

DECC offers support through environmental information and training, advice from industry specialists, information on Government assistance, and opportunities to network with similar organisations. The partnership with DECC runs for 18 months.

Sustainability Advantage has been greeted with enthusiasm by business, and over 100 companies had joined the program at June 2007. These were based in urban and rural areas, and represented sectors such as food processing (including Goodman Fielder, Coca-Cola Amatil, Kellogg); building products manufacturers (including CSR Gyprock, Boral, Vinidex); commercial property; and tertiary education.

EcoClubs

Following the success of a pilot project in 2005–2006, a new three-year partnership agreement was signed in February with ClubsNSW to help registered clubs to identify opportunities to save water and energy, and reduce waste, under the EcoClubs project, which is part of Sustainability Advantage. Participating clubs also engage in sustainable construction and refurbishment, and make their supply chain more sustainable, in collaboration with staff and members.

With more than 1400 registered clubs in NSW, the industry has a large impact on both greenhouse gas emissions and water consumption. Twenty-four clubs were committed to the program by 30 June 2007. Participants included Mt Pritchard and District Community Club (Mounties); Dooleys Catholic Club, Lidcombe; and Asquith Bowling and Recreation Club.

Projects initiated under EcoClubs include the first trial of turning organic waste into energy in the clubs industry; a collaborative project with the Packaging Stewardship Forum to reduce packaging waste; and trials to reuse glass fines from the bottle crushers installed in many club bars.

Sustainability Compacts

Sustainability Compacts are voluntary agreements between businesses and the NSW Government where parties commit to work together over three to five years. Compacts focus on environmental improvement in four key areas:

- leadership in sustainability
- sustainable products and services
- efficient production and service delivery
- environmental responsibility.

In July 2006, Insurance Australia Group (IAG) joined sustainability leaders, Sensis and Hewlett-Packard in signing a Sustainability Compact with the NSW Government. For information on IAG's compact, see the case study.

Sensis has developed an 'opt-out' option for delivery of print directories and Hewlett-Packard has established a national take-back scheme for computer hardware. DECC and Hewlett-Packard will collaborate on 'environmentally preferable' information and communication technology purchasing for business and government, and best practice for the reuse and recycling of printer cartridges.

Extended producer responsibility

Extended producer responsibility (EPR or product stewardship) requires producers to be physically and financially responsible for the environmental impacts of their products throughout their lifecycle. This includes their choice of materials, product design and the use and disposal of products at the end of their life.

In 2006, an Expert Reference Group reviewed the progress on reducing 17 wastes of concern: computers, mobile phones, office paper, paint, plastic bags, televisions, tyres, agricultural and veterinary (Agvet) chemicals, Agvet chemical containers, batteries, cigarette litter, end of life vehicle residuals, other electrical products, packaging, polyvinyl chloride (PVC), treated timber, and used oil and lubricants. DECC incorporated the group's recommendations for action into the 2005–06 *NSW Extended producer responsibility priority statement* released in October 2006.

DECC continues to support national initiatives to achieve product stewardship outcomes for televisions, computers, tyres, plastic bags, mobile phones and packaging. Through DECC, NSW is leading the Environment Protection and Heritage Council work relating to electrical products. Actions include developing regulatory impact statements, modelling options for action, and developing a generic National Environment Protection Measure to underpin voluntary product stewardship schemes as they are initiated.

■ CASE STUDY

Sustainability Compact with IAG

In July 2006, the NSW Government entered a new partnership with Insurance Australia Group (IAG) through a Sustainability Compact.

As part of the four-year agreement, IAG is:

- developing a 'risk radar' to help 50,000 agricultural businesses consider environmental and occupational health and safety issues
- promoting sustainability to its customers by delivering education programs to help them manage their environmental risk and improve the sustainability of their businesses
- implementing 'buy green' strategies to encourage manufacturers and suppliers to make their operations more environmentally friendly and be more responsible for the lifecycle of their products
- providing information about sustainable purchasing to IAG customers
- working with suppliers to minimise resource consumption and improve waste management
- implementing an energy management plan across IAG premises, including environmental audits at key sites, replacing fleet vehicles with hybrids, and enhancing waste management.

Photo: DECC

Lisa Corbyn, Director General DECC (left) with Sam Mostyn, IAG's Chief Executive, Culture & Reputation. IAG signed a Sustainability Compact with DECC to implement strategies that will minimise waste and energy use, and maximise recycling and reuse.

A key initiative was to trial collection of damaged household items, such as fridges and furniture, replaced under insurance claims in southern Sydney, and either repair then sell them for reuse, or recycle them. In the first seven months of the trial, 36 tonnes of material were collected with 29 tonnes diverted for reuse or recycling, representing an 80% reduction in the number of items sent to landfill.

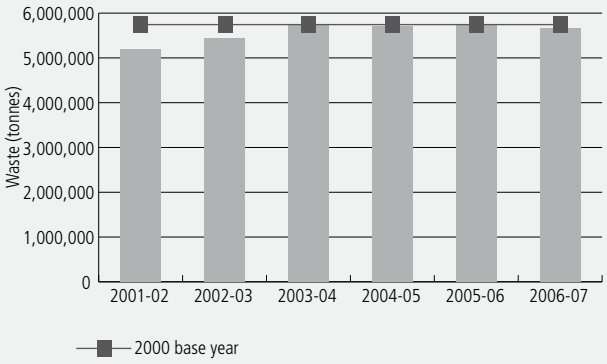
As a result of customer feedback, IAG has expanded the trial to cover western Sydney and is considering developing a national scheme.

■ PERFORMANCE INDICATOR

Change in waste disposed of to landfill in the Greater Sydney Region under the Waste Avoidance and Resource Recovery Strategy

Definition: This indicator measures the tonnages of waste disposed of to landfill from the Greater Sydney Region (from Port Stephens to the Shoalhaven and including the Sydney Metropolitan Area). DECC leads the implementation of the NSW Waste Avoidance and Resource Recovery (WARR) Strategy.

Waste disposed of to landfill in the Greater Sydney Region



Interpretation: Since 2003 the measurement of waste disposal has been greatly improved through the electronic reporting system introduced by DECC, which enables more accurate capture, analysis and verification of data.

The NSW waste and environment levy is a significant economic driver for waste avoidance and recovery. The NSW City and Country Environment Restoration Program established a five-year schedule of annual $6 per tonne increases to the levy, with the first increase coming into effect in July 2006. The 85,467 tonne (1.5%) decrease in waste disposed of to landfill in 2006–07 compared with 2005–06 (a decrease from 5,735,841 tonnes to 5,650,374 tonnes) may be in response to the increase in the levy.

National Packaging Covenant

A National Packaging Covenant (NPC) commenced on 1 July 2005 and will expire in 2010. The covenant is a voluntary agreement between Australian governments, including NSW, and businesses, to minimise the disposal of used packaging by reusing or recycling it. The NPC aims to increase recycling or reuse rates from 48% to 65% of packaging, and not increase the amount of packaging sent to landfill by 2010. Signatories must develop action plans and report on standard performance indicators.

The Annual Progress Report for 2005–06 includes the following key achievements:

- an increase in the packaging recycling rate to 56% from the baseline of 48% in 2003
- 416 signatories had joined the NPC to 30 June 30 2006
- projects worth almost $1.5 million are under way across Australia, mainly focusing on improving recycling.

Since September 2006, the NPC has gained another 102 signatories, including major companies such as Woolworths, Coles, David Jones, Shell Australia, Bunnings, Hungry Jacks, Nokia and Elizabeth Arden.

New packaging waste regulations for NSW

In NSW, new packaging waste regulations came into effect in September 2006 under the Protection of the Environment Operations (Waste) Regulation. These apply to companies that own their own brands, have an annual turnover above $5 million and either refuse to sign the NPC or are deemed non-compliant under the NPC. Any business covered by the regulation must:

- complete an action plan demonstrating how they will collect and recycle 65% of used packaging from their products
- show how they will educate customers to recycle their packaging
- report progress to DECC every year.

Failure to comply with the waste regulation carries a maximum penalty of $22,000 for a corporation and, in the case of a continuing offence, a further penalty of $11,000 for each day the offence continues.

DECC has pursued actions under the regulation against companies that are not signatories to the NPC.

Strong community support continues for **action on plastic bags** to reduce the litter and the damage to the environment they cause. The community is participating by using reusable bags. The Environment Protection and Heritage Council (EPHC) has reaffirmed its goal of phasing out lightweight plastic bags by the end of 2008. A draft regulatory impact statement (RIS) was released for public comment in January 2007. Options for implementing nationally consistent regulatory action and the final RIS will be considered by EPHC Ministers later in 2007.

2.4.2 Supporting businesses in minimising resource use, recovering resources, and disposing of waste

Waste Avoidance and Resource Recovery Strategy 2007

DECC leads the implementation of the NSW Waste Avoidance and Resource Recovery (WARR) Strategy which began in 2003 and provides a major driver for reducing waste and disposal. Achievements under the strategy rely on industry, councils and the community working to reduce targeted waste areas. DECC reviewed the 2003 WARR Strategy, and exhibited a progress report and a new draft strategy in September 2006. The final 2007 strategy:

- provides a framework for cutting waste, increasing recycling and reuse of materials, reducing toxicity in products, and reducing illegal dumping and littering
- evaluates efforts to manage waste, and sets priorities for achieving NSW's 2014 recycling targets
- provides results from DECC's waste data system.

DECC's waste data system, established in 2004, enables facilities to enter their data online. It collates data on waste disposed of to landfill, thus allowing for reliable and extensive monitoring of waste habits in the Greater Metropolitan Region (Sydney, the Hunter, Central Coast and Illawarra).

The data from the WARR review, published in late 2006, compared data for 2004–05 with 2002–03. In 2004–05:

- Greater Sydney generated 882,000 tonnes more waste
- Greater Sydney recycled 8% more waste (418,000 tonnes)
- total recycling in NSW increased by 1% to 46% of waste created, and consequently waste disposal to landfill dropped from 55% of waste generated to 54%
- Sydney recycled 49% (1% more) of its waste
- the Hunter, Central Coast and Illawarra regions recycled 50% of their waste (an increase of 3% recycled).

Information on the contribution of government agencies to recycling is on page 31.

Working with local government

Councils play a key role in managing waste from households and can influence the community and business through education and the provision of services designed to achieve change. Councils have made significant gains in recovering municipal waste for recycling in recent years. In 2007, DECC conducted its annual survey of local council recycling. Data for 2006–07 will not be available until November 2007.

In 2005–06, NSW councils collected increased amounts of recyclable material from the kerbside with a 2.6% (15,529 tonnes) improvement on the previous year.

In the first year of the **Waste Performance Improvements Payments**, administered by DECC and distributed in October 2006, all 51 councils in Sydney, the Hunter, Illawarra and Shoalhaven were rewarded for meeting service performance requirements developed in consultation with the Local Government and Shires Association and an advisory group. These councils shared $4 million for meeting the requirements, which included:

- providing kerbside recycling to all homes in their area with some rural areas exempted
- collecting and providing DECC with data including tonnes of garbage, recycling and green waste produced and collected in their local area
- entering into landfill disposal contracts for a maximum of five years to retain the flexibility to adopt new technologies in the future.

DECC provides tools and information to support councils in their efforts to improve waste services. These include:

- a preferred resource recovery practice guide
- a study on the environmental benefits of recycling and a calculator to assess these
- model waste and recycling contracts
- a guide to alternative waste technology
- triple bottom line studies on collection and processing of waste.

■ CASE STUDY

Recycled glass fines used for water and sewer pipe embedment

DECC has conducted successful trials with Sydney Water Corporation on the use of crushed recycled glass as a replacement for sand to embed water mains and sewer mains pipes.

The first concern was to assess if the glass presented a health risk. DECC facilitated laboratory tests and field trials on crushed and cleaned, recycled glass with Sydney Water Corporation and Benedict Sand and Gravel. In the samples tested, either no chemical and physical contaminants were found, or they were present at minute levels, below the limits for inert waste classification in DECC's *Environmental guidelines: Assessment, classification and management of liquid and non-liquid wastes*.

Sydney Water conducted two field trials in November 2006 to assess whether a recycled glass and sand mixture could replace natural sand as pipe-embedment material in water mains and sewer mains pipes. The mixture was tested for ease of handling, occupational health and safety features and compaction. The trials demonstrated that blends of crushed glass and sand were suitable replacements for natural sand as pipe embedment.

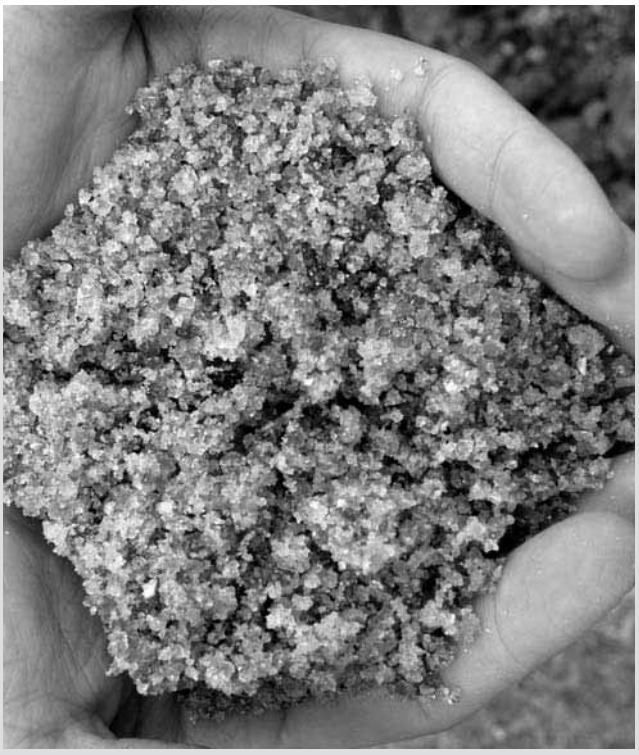


Photo: J. Street, DECC

Glass fines are being safely reused to reinforce sewer mains pipes.

The innovative use of this resource reduces waste to landfill, conserves rapidly diminishing sand resources and reduces the environmental impact of quarrying.

Multi-unit dwellings grants

DECC held workshops in late 2006 for educators, waste managers, and rangers from 47 councils with high densities of multi-unit dwellings (MUDs). Twenty-six councils with high MUD densities are sharing in grants totalling more than $380,000 to educate unit residents under the 'Dumping. It's dumb' MUD Illegal Dumping Prevention Campaign. In their applications, councils had to demonstrate ways in which they would educate their communities about dumping, using tools provided in a council resource kit. In mid March 2007, nine projects were approved for funding: two to be conducted by individual councils, and seven to be run by regional groups of councils.

Regional local government support

The eight voluntary Regional Waste Groups, which cover 90% of rural and regional NSW, have undertaken three-year regional planning for 2006–09 in consultation with their member councils. DECC continues to provide significant support through forums, dedicated staff support, tools and other resources, and advice.

DECC provided over $1.5 million to regional waste groups for key programs identified in the regional plans which include:

- the NSW Public Library Network running an education campaign in 97 libraries across rural regional NSW to reduce, reuse and recycle waste
- trialling of an Environmental Risk Assessment and Mitigation Package developed by DECC to assist councils with assessing the environmental impact of their landfills – the package was successfully trialled with 13 council landfills, and other councils are eager to use it to prioritise long-term planning for landfill and transfer station improvements
- improving data that can be used to encourage the establishment of reprocessing facilities and development of local markets for recycled and reused waste.

2.4.3 Promoting sustainability in the NSW Government

DECC participates in NSW Government metropolitan and regional planning to support the adoption and implementation of sustainability and environment protection principles.

Planning for sustainability

Metropolitan planning

DECC works with other NSW Government agencies to ensure that development and planning integrate sustainable principles, and that new developments do not threaten biodiversity and the environment. In December 2005, the Government released the **Metropolitan Strategy for Sydney**, *City of cities: a plan for Sydney's future*, providing the framework for managing Sydney's growth over the next 25 years. DECC activities that support or help implement the strategy's objectives and actions include:

- air quality improvement through Action for Air and the *Local government air quality toolkit* (see pages 38 and 40)
- noise abatement through the NSW Industrial Noise Policy, *Environmental criteria for road traffic noise* and the updated *Noise guide for local government*
- guiding the Growth Centres Commission on stormwater management to minimise the impact of urban development on aquatic biodiversity
- assisting the Department of Planning with air and noise planning guidelines for development along transport corridors
- investigating the use of noise mapping as a planning tool to avoid land use conflicts.

Regional planning

DECC has been working with the Department of Planning to develop regional strategies, which identify coastal areas for development over the next 25 years, for the Far North, Mid North, Lower Hunter, Central Coast and South Coast regions. DECC is ensuring that:

- where appropriate, environmental targets are incorporated into the regional strategies
- the biodiversity impacts of development are minimised and offset as required by developing regional conservation plans for each region (see pages 67–68).

Waste Reduction and Purchasing Policy

The NSW Government's Waste Reduction and Purchasing Policy (WRAPP) is a whole-of-government policy that aims to make NSW Government agencies and state owned corporations model waste managers by encouraging them to:

- reduce waste
- increase recycling
- increase their purchases of products containing recycled content.

WRAPP requires agencies to buy materials with recycled content where they are cost-effective and performance competitive, and reduce the amount of waste they generate. The agencies, including DECC, report their performance every two years. DECC's environmental performance is reported on page 124.

DECC collated the reports received from 122 agencies for 2003–05, and published the *Waste reduction and purchasing policy progress report 2006* in September. Good progress was made by state government agencies during the reporting period. Compared with the previous report:

- recycling rates increased to 82% (a 9% improvement)
- more materials with recycled content had been purchased, including 44% of copy paper (a 5% improvement), and 42% more construction products with recycled content.

The 2006 report estimated that the amounts recycled by agencies have cut approximately 118,000 tonnes of greenhouse gases.

Reporting under WRAPP has been improved and streamlined. DECC provided WRAPP reporting guidelines for 2007 to NSW Government agencies and state owned corporations, prepared an information sheet, *WRAPP – What's new for 2007*, and presented information seminars for agencies. In June 2007, the reporting requirements were further streamlined under the Government's internal red tape review. From 2007, agencies with fewer than 200 employees will report on WRAPP every three years in their annual reports rather than provide a biennial report to DECC.

DECC continues to work with government agencies, particularly the Department of Commerce, to incorporate sustainable practices into contracts for the supply of goods and services to government. In 2006–07, DECC contributed to the Department of Commerce's tender for the NSW Government purchasing contract for computers that included the requirement for suppliers to take back an old computer for every new one supplied. These old computers are only safely disposed of if they cannot be recycled or reused.

Work also continued on improving the Government's online procurement system, Smartbuy®, to help buyers identify environmentally sustainable products.

■ CASE STUDY

Compost helps create parks and improves playing fields

Penrith will receive expansive new parklands and community open space courtesy of an old landfill site and western Sydney's recycled garden waste, through a joint project between DECC and Penrith City Council. The trial, using 1500 cubic metres of compost, demonstrated that compost can successfully rehabilitate old landfill sites. On such sites, the turf has established faster than usual, the parklands will be developed sooner and, importantly in this time of drought, the turf has held up well despite low rainfall.

Penrith City Council and DECC also evaluated using compost for improving sporting and playing fields. The use of compost helps saves money when constructing and maintaining sporting fields, by reducing the need for sand, soils, water and fertiliser. Penrith City Council will introduce a new household collection service for garden and food compost, and most of this will be used to improve the quality of their playing fields.

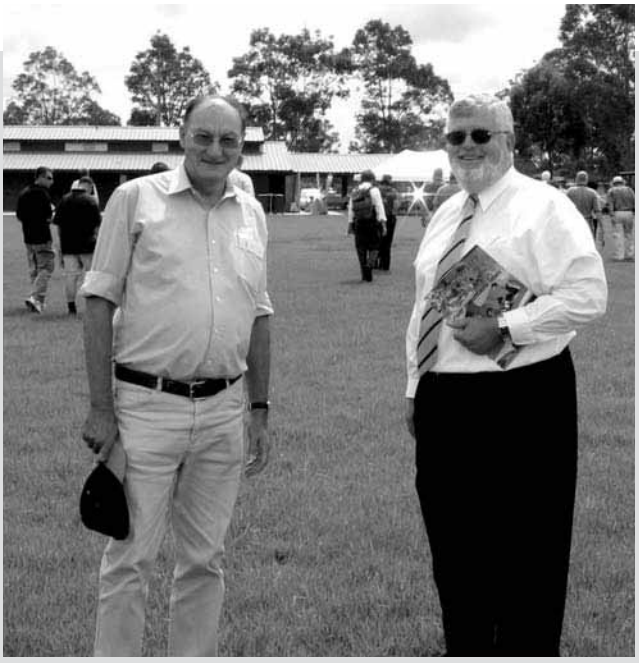


Photo: M Jackson, DECC

Tim Rogers, DECC's Executive Director Sustainability Programs Division (left), with Alan Travers, General Manager Penrith City Council, at a field day highlighting the benefits of using compost on soccer fields.

Using recycled organic waste

Householders can make a valuable contribution to the health of catchments and parks by recycling their garden trimmings. DECC delivers projects that reuse **organic materials** (compost) diverted from landfill. Organic waste disposed of to landfill is a major contributor to greenhouse gas generation, so these programs help to reduce emissions.

In the **Parks and Gardens Project**, five workshops were attended by 34 parks managers and coordinators from 17 councils. All attendees said they would consider recommending their council increase their use of compost. Attendees from 14 of the councils were interested in participating in trials with DECC to use compost in their parks and gardens. Four councils (Ku-ring-gai, Port Macquarie–Hastings, Wollongong and Penrith) commenced trials in 2006–07.

Twelve demonstration projects using compost in sports field construction and renovation were established, two in DECC's Ku-ring-gai Chase and Garigal national parks, and others with Port Macquarie Hastings Council, Ku-ring-gai Council, and the Department of Education and Training (in Carlingford West Primary School, Killara High School, Kingsgrove North High School and Leumeah Public School).

More than 10% of the Sydney catchment is affected by a high level of erosion, which impacts on the quality of waterways, and the productivity of agricultural land. DECC, the Department of Primary Industries and Hawkesbury–Nepean Catchment Management Authority (CMA) conducted trials that have shown that when compost is applied, soil erosion can be reduced by up to 85% and vegetation establishment improved. Following these trials, the Hawkesbury–Nepean CMA purchased over 5000 cubic metres of compost in 2006–07 to use in land rehabilitation programs conducted with landholders.

In 2006–07, DECC produced draft guidelines for using compost in catchment projects, and large-scale demonstration trial projects were established in partnership with Southern Rivers and Hunter–Central Rivers CMAs.

Alliances with local government

In partnership with the Local Government Managers Australia, DECC has helped councils to determine which areas of their organisation are sustainable. Councils developed and piloted the **NSW Local Government Sustainability Health Check**, a manual which covers asset management, protection and management of the natural environment, and community and cultural services. Training workshops for council officers on implementing the health check were run in late 2006 and attended by 69 council representatives.

Sustainable Choice is a partnership project between the Local Government and Shires Association and DECC. Launched in late 2006, the project signed up 22 councils to form a sustainable purchasing alliance in NSW. The alliance aims to provide tools and resources to encourage councils to buy sustainable goods and services. A Sustainable Choice Expo was held in May 2007 in Bathurst where 23 suppliers of sustainable goods and services met with staff from 14 councils. The Sustainable Choice database, the first of its kind in NSW, was launched, listing information about the product, service and supplier, and detailing the product's sustainability benefits.