



THE AUSTRALIAN NATIONAL UNIVERSITY

**Annual Report  
of the  
Environmental Management Planning  
Committee  
to the  
Vice-Chancellor**

**1 April 2006 to 31 March 2007**

## MAJOR ACHIEVEMENTS OF 2006

The ANU continues to work towards best practice in corporate environmental management. After 8 years the ANU can now be said to have the most comprehensive and successful environmental management program in the Australian tertiary sector. While there is still some way to go to achieve the challenging targets laid out in the ANU Environmental Management Plan (2003-2008), many of the actions contained in the plan have been met and exceeded. The major achievements for the period 1 April 2006 – 31<sup>st</sup> March 2007 are listed below:

- The ANU entered into an agreement with ACTEW/AGL for the purchase of 12.5% green energy, which will reduce our greenhouse gas emissions by 12,000 tonnes of CO<sub>2</sub><sup>e</sup> in 2007, this will scale up to 20% in 2009
- Hits to the ANU website have increased from 66,000 in 2004 to 180,000 in 2006
- The ANU reduced its waste to landfill by a further 7% in 2006 despite increases in operations. The ANU now recycles 460 tonnes more per annum than it did in 2002
- The ANU established polystyrene recycling and 1 tonne of polystyrene was recycled
- 1236 items of e-waste was recycled
- 907 items of furniture were collected and reused or recycled
- The 'Life in the Suburbs' project was launched and habitat guidelines for urban biodiversity were established
- The ANU reduced the greenhouse gas emissions arising from its vehicle fleet use by 10%
- The 'Timely Treadly' program was launched; this program provides bikes for use in 35 departments around campus. In 2006 38,000 kilometres was traveled on these bikes. This award winning program has received national recognition as best practice in sustainable transport and has attracted coverage on TV, radio and the print media
- The ANU carpooling program has expanded from 140 to 252 participants
- The ANU Bike Co-op was established with assistance from LEAD Development a local NGO that provides work-related opportunities for mentally and physically disabled people. LEAD helps the ANU maintain and service the hundreds of used bikes that are donated each year, these are then provided to students at minimal cost. Over 200 bikes have been distributed so far
- The Sustainability Learning Community was established with 140 student members from across the university. This group participates in various activities including, organic gardening, corporate sustainability programs and biodiversity initiatives
- The ANU won a Keep Australia Beautiful Sustainable Cities award for its 'Timely Treadly' initiative
- The ANU won a Keep Australia Beautiful Sustainable Cities award for its 'IT Waste Recycling' program
- Due to its best practice environmental risk protocols the ANUgreen team managed to avoid and clean up a major fuel tank spill that could have polluted a large area of Sullivan's Creek
- ANUgreen launched its Sustainability @ Work program which now has 70 representatives across campus
- An international publication called 'Sustainability in the Australasian University Context' was published by Peter Lang (Germany), this book, edited by the Manager of ANUgreen has 8 chapters from ANU staff, showcasing a number of our initiatives including: recycling, biodiversity management,

## INTRODUCTION

This report details initiatives undertaken to improve environmental performance within University activities during the period 1 April 2006 – 31 March 2007. The report has been prepared by the Sustainability Office, Facilities and Services Division, on behalf of the ANU Environmental Management Planning Committee (EMPC).

The EMPC was established to provide advice to the Vice-Chancellor on relevant corporate environmental issues and to oversee the implementation of the University's Environmental Management Plan. The committee membership consists of representatives of various groups, including University management, general staff, academic staff and students. Committee membership during the reporting period was:

### Chair

Professor Ian White

### Ex Officio

University Executive

Vacant

Facilities & Services Division

Director - Mr Warwick Williams

Associate Director (Business & Site Services) - Mr Bart Meehan

Finance & Business Services Division

Manager, University Purchasing and Contracts - Mr Brian Burke

National Institute for Environment (NIE)

NIE Executive Officer - Mr Sean Hannan

Occupational Health & Safety Officer - Mr Roy Schmid

### Members representing:

Business Managers Group

Mr Rana Ganguly

Academic Staff (The Faculties)

Mr Cris Brack

General Staff

Mr John McGee

National Institute of the Arts

Mr John Reid

The Institute

Vacant

Heads of Halls & Colleges

Mr Keith Conley

ANU Students Association

Mr Simon Copland

PARSA

vacant

ANU Union

Mr David Sykes

Students - Halls and Colleges

### Ad Hoc Membership

Manager, Sustainability Office- Dr David Carpenter

Energy and Water Conservation Manager- Mr John Sullivan

Environmental Risk Officer - Dr Su Wild River

Biodiversity Project Manager – Ms Beth Mitchell

Environmental Officer – Ms Millie Rooney

Recycling Manager – Mr Barry Hughes

### Secretariat

Nicki Tobin

## **Environmental Management Plan (EMP)**

The EMP lists a number of objectives designed to improve the University's environmental performance in the following areas:

- Energy & Greenhouse Gas Emissions
- Water (Usage, Disposal, Stormwater)
- Recycling & Waste
- Pollution Prevention/Environmental Risk Assessment
- Biodiversity
- Transport
- Community Awareness
- Environmental Management

The following report outlines activities that have been undertaken against each area of the EMP, and reports on progress towards the EMP's objectives using a number of key performance indicators.

## ENERGY & GREENHOUSE MANAGEMENT

**Objective** – To achieve a continual improvement in energy conservation

**Target** – To reduce absolute energy consumption and greenhouse gas emission levels to 10% below the base level year (2002) by 2008 based on business as usual projections.

### Performance Indicators:

Indicator	Base Year <sup>1</sup> (2002)	2004	2005	2006	% variation (2005/6)
GJ energy per EFTSU & FTE	26.5	32.74	31.44	31.80	+1.1%
tCO <sub>2</sub> <sup>e</sup> per EFTSU & FTE	5.65	6.66	6.68	6.83	+2.2%
GJ energy per m <sup>2</sup>	0.99	1.08	0.97	0.96	-1%
kg CO <sub>2</sub> <sup>e</sup> per m <sup>2</sup>	212	220	207	206	-0.5%

Total number of Equivalent Full Time Student Units (EFTSU) and Full Time Equivalent Staff (FTE) was 14,688 in 2006

CO<sub>2</sub><sup>e</sup> emissions calculated at a rate of 1.068 kgCO<sub>2</sub>e/kWh electricity and 68.0 kg CO<sub>2</sub>e/GJ gas consumed - the emission factor for kgCO<sub>2</sub>e/kWh increased from 1.054 in 2005 to 1.068 in 2006, this accounts for 1.1% of the annual increase in greenhouse gas emissions.

Total building space in m<sup>2</sup> by end of 2006 was 487,672 up 4% from 468,181 in 2005

Total energy use for 2006 was 467,087 GJ comprising:

- 85,556 MWh (308,005 GJ) of electricity – up 5% from 81,459MWh (293,254 GJ) in 2005
- 159,082 GJ of gas down 2.2% from 162,719 GJ of gas in 2005
- This equated to CO<sub>2</sub><sup>e</sup> emissions of 100,362 tonnes<sup>2</sup>, an increase of 3439 tonnes (3.5%) over the 2005 figure.

The energy consumption and greenhouse gas emissions of the university continue to increase each year because of the high capital development taking place on the campus. While efficiencies in relation to energy use and greenhouse gas emissions per m<sup>2</sup> have taken occurred, total consumption in terms of Gigajoules continues to increase. The university will have to invest in major demand side abatement activities, green energy purchase and greenhouse gas abatement to address this continuing increase. A number of recent initiatives will work to reduce the university's greenhouse gas emissions, these are discussed below.

### Status of EMP Actions:

***Engage an Energy & Water Conservation Manager initially for one year to coordinate a self-funding energy and water conservation program.***

In 2005 the Energy and Water Conservation Manager, Mr Warren Overton left the employment of the ANU. Mr John Sullivan subsequently took up this position. This a permanent position within the Sustainability Office.

<sup>1</sup> Updated with 2006 emission factors

<sup>2</sup> This figure was reduced from 102,190 to take into account the 2% green energy the ANU purchased in 2006

***Develop and monitor energy and greenhouse performance indicators across the university to provide a benchmark for measuring improvement.***

During 2006 the university continued to improve on data collection processes and the development of performance indicators and reporting. Noting the importance of this issue, Facilities and Services has recently employed an assistant to the Energy Manager who is working on the development of an energy and greenhouse gas database, which will provide relevant, timely and accurate data on the energy consumption and greenhouse gas emissions of business units.

***Include energy and greenhouse indicators on monthly utility reports forwarded to the management of areas, as well as information on energy conservation initiatives.***

These reports will be incorporated into the abovementioned database, and will be available to business units via an internet site by the end of 2007.

***Evaluate the market to identify new energy conservation technologies and consider recommendations for action and communicate relevant information to stakeholders on a regular basis.***

Evaluation of new energy technologies is a constant activity by many individual staff with information tabled at regular meetings of the Energy Conservation Management Group. The Manager, Energy & Sustainability meets with suppliers and other university representatives on a regular basis to explore opportunities to trial new technologies.

***Establish energy supply arrangements, which provide for a 2% increase in green power use per year based on commercial availability.***

The ANU has recently entered into an arrangement that has seen it increase its purchase of green energy to 12.5% from the beginning of 2007. This will significantly reduce the ANU's greenhouse gas emissions in 2007. The purchase of green energy will increase to 20% by the end of 2009.

***Develop and assist areas to adopt a purchasing program that promotes the purchase of products with good energy efficiency ratings, life cycle costs and, where practical and data is available, considers embodied energy.***

ANUgreen works closely with the University Purchasing and Contracts Office to ensure that where possible environmental guidelines are incorporated into preferred supplier arrangements. The ANU Sustainability @ Work program also promotes the purchase of energy efficient products.

***Develop and implement energy conservation & greenhouse awareness programs for staff and students, integrated with other environmental initiatives.***

Staff and student awareness activities are covered in the Community Awareness section.

***Use architects, landscape architects, planners, builders and designers who provide energy efficient design. Build on the existing register of architects, planners etc who have demonstrated expertise in environmentally sustainable design.***

The ANU has continued to require design teams to demonstrate experience with ESD in their proposals and to also apply the ANU ESD standards to their designs.

***Establish specific showcase Environmentally Sustainable Design projects.***

The ANU has not established individual showcase projects; rather, it has applied ESD standards to all new buildings and major refurbishments. The main outcome from the application of these standards has been the use of fully passive or hybrid ventilation systems to provide cooling – substantially reducing energy load from air-conditioning. A number of recent major projects have had significant ESD inclusions, examples include:

- The JCSMR stage 1 project has seen the use of an adaptive air-conditioning system that allows the option of opening the windows or using the air-conditioning system. The decision making process is assisted by the use of “Traffic Lights” located in the area of the operable windows. The lights when red indicate that windows should not be open; the amber light indicates that they could be open or closed and the green lights indicate that the outdoor temperature is suitable to have the windows open. It is hoped that the system will reduce the load on the AC system during the warmer months of the year. The building also uses the mass of the large entry stairs to pre cool outside air before entering the building air-conditioning system for the foyer and lecture theatre area
- The AITC building at MSO was able to have two 20,000 litre water tanks incorporated into the design of the building, these tanks are able to capture and store rainwater to be used for toilet flushing, irrigation and fire system back up.

## WATER MANAGEMENT

### *Water Usage and Disposal*

**Objective** – To achieve continual improvement in water conservation

**Target** – Reduce water consumption levels by 10% by 2008 compared to the base year (2002)

**Performance Indicator:**

Indicator	2002 (Base Year)	2004	2005	2006	% variation 2005/6
kl of water consumed	746,901	619,377	623,966/680,859 <sup>1</sup>	781,564 <sup>2</sup>	NA
kl water per EFTSU & FTE	52.62	44.99	43.03		NA

1. The 2005 total of 623966 does not align with the database that indicates a total consumption of 680859 this may be due to the omission of the Grey water for North and Willows ovals, Fenner Hall and MSO as follows: Grey Water – 20632 kl, Fenner Hall – 26000 kl, MSO – 15449 kl
2. The annual consumption for 2006 has increased significantly due to the inclusion of areas mentioned in (1) above, that were not previously included in previous year's reporting

The 2006 total of 781564 kl is inclusive of Grey Water, Fenner Hall, MSO, and City west

The ANU meter list is broken into 3 main categories: Domestic, Domestic & Irrigation and irrigation.

The table below indicates the 2005 and 2006 comparisons

	2005	2006	diff	% diff
Domestic (k/l)	388659	406966	18307	4.7
Domestic& irrigation (k/l)	133207	145561	12354	9.2
Irrigation (k/l)	117544	165425	47881	40.7
Fenner Hall (k/l)	26000	31155	5155	19.8
MSO (k/l)	15449	28526	13077	84.6
City West (k/l)	0	3931	3931	100
Total	680,859	781,564	100,705	14.7

Even though the ANU has introduced reductions in the level of irrigation due to the continued drought conditions and the associated water restrictions, the drought has resulted in irrigation being used during periods that had historically not required irrigation. Other points to note are the introduction of the City west (UNI Lodge) site and the redevelopment of MSO.

**Status OF EMP Actions:**

***Monitor total water consumption levels and provide sector-level reports of water consumption where feasible***

Water consumption data continues to be collated for the 200 meters installed on campus. This data is checked for excessive consumption and any anomalies are investigated.

***Review the outcomes of the 1997 water audits and implement viable recommendations***

This action was instigated in 2002 and continues to be worked upon.

***Develop and implement a water conservation awareness campaign for staff and students, integrated into other environmental initiatives***

Staff and student awareness activities are covered in the Community Awareness section.

***Continually review water saving technologies and assess their suitability for use throughout the campus***

The Energy and Water Conservation Manager continually reviews water conservation technologies and assesses their suitability for use on campus. This includes the modification and adaptation of existing systems in order to reduce water consumption. These tasks are undertaken with Technical Officers through the Technical Officers Water Conservation Working Group. This group shares knowledge about the water conservation initiatives underway in the Research Schools and Faculties.

## STORMWATER MANAGEMENT

**Objective** – To avoid all pollution to the stormwater system, ensuring that only rain reaches Sullivan’s Creek via stormwater drains

**Targets:**

- Avoid all actions that could attract infringements for water pollution under the ACT Environmental Protection Act (1997)
- Ensure a high level of understanding of the function and location of stormwater drain entrance points, among university staff that handle potential contaminants

**Performance Indicator:**

Indicator	2003	2004	2005	2006	variation 2005/6
No. of EPA breaches relating to stormwater identified during campus environmental risk assessments and other inspections	5	0	1	1	0

**Status OF EMP Actions:**

***Develop and implement a community stormwater awareness campaign, which includes a drain-stencilling component***

Drain stencilling will be updated in 2007 as part of the Green Steps program

***Conduct biennial reviews of water quality in Sullivan’s Creek***

The Environmental Risk Officer is working closely with the Biodiversity Officer to establish a long-term program for monitoring the water quality of Sullivan’s Creek.

***Continue to work closely with the ACT community and government in the development of a Sullivan’s Creek catchment management plan.***

Completed in 2002.

***Install sediment traps in all stormwater drains where existing infrastructure and practices generate a residual risk of stormwater pollution***

Work has been ongoing since 2002. The Environmental Risk Officer is reviewing the infrastructure on campus that still comes up in annual environmental risk reports as contributing to the residual risk, above the 20% target. The budget for Risk Management will largely be spent addressing enough of these so that we can achieve the 20% target by 2008.

***Prepare a generic stormwater training course with specific information targeted to science, arts, food services and other buildings. Include drainage plans in training materials***

The course was developed and delivered during 2002 and 2003. A one-hour session was designed to target technical officers. Course materials included maps of relevant drainage plans for each participating area. A 5-minute course was designed for cleaners, accommodating low English literacy.

***Train technical officers in stormwater management and stormwater management plan development***

Most of the current cohort of Technical Officers has been through the training courses that were developed in earlier years. Courses will be offered in 2007 for new staff, and those needing refreshment of their skills.

***Further develop an ANU stormwater management plan that integrates all of the campus stormwater management initiatives. Display the plan on the ANUgreen website***

The development of stormwater management plans was incorporated into the Stormwater training sessions described above.

***Develop a landscape water conservation plan in conjunction with the University's Landscape Plan***

Facilities and Services have established a landscape water conservation committee that is comprised of hydraulic experts, environmental managers and gardeners. This committee is working to develop a comprehensive landscape water conservation plan for the ANU that aims to ensure that no potable water is used on the campus landscape by 2010.

***Amend service-level agreements to take account of stormwater management issues***

The master agreement has been amended. Other agreements will be amended as they are updated. The changes were reinforced during spill response training in 2005.

## POLLUTION PREVENTION/ENVIRONMENTAL RISK

**Objective** – To continually improve pollution prevention actions, and to achieve best practice environmental management in line with the Australian Capital Territory Environmental Protection Act (1997).

### Targets:

- To achieve a campus average residual environmental risk of less than 20% by 2008
- Avoidance of all actions that could attract infringements under the EPA
- All relevant technical officers and contractors aware of environmental protection laws and pollution prevention strategies
- Effective pollution prevention infrastructure in place in all relevant areas across campus, with technical officers knowledgeable of maintenance and use
- Spill kits in place in all relevant chemical and waste storage areas, with relevant technical officers trained in their use

### Environmental Performance Indicators:

Indicator	2003	2004	2005	2006	% variation 2005/6
Percentage residual risk based on CERAM methodology <sup>(1)</sup>	31%	30%	26%	26%	0
No. of technical officers trained in stormwater pollution prevention measures	66	0	37	0	
No. of actions that could attract infringements under the ACT EPA.	5	0	1	1	0

1. CERAM – Comparative Environmental Risk Assessment Methodology

Residual environmental risk now stands at 26%. The University continues to decrease its residual environmental risk in line with its target of achieving 20% residual environmental risk by 2008.

### Status of EMP Actions:

***Engage, as required, a Pollution Prevention Officer to coordinate pollution prevention actions, including training activities based on the CERAM methodology***

Dr Su Wild River is currently working 2 days a week as the ANU Environmental Risk and Pollution Prevention Officer.

**Design and distribute spill kits appropriate for each area where new or waste chemicals are stored and used**

Table 1 shows the availability of chemical spill response equipment around campus. The number of kits available to prevent spills to stormwater increased from 4 to 16 during 2005 as a result of this ANUgreen initiative. This includes 3 bulk spill kits available at Facilities and Services for deployment to any large spill on campus. In addition, four items of specialist spill response equipment were distributed to meet specific infrastructure needs. These included three drain covers and one sand-filled bund.

**Table 1 – Availability of ANU spill response equipment as at March 2006**

Building/location	Storage Sheds	Equipment description	Source
57-58 RSPhysSE	Flammable	20L	<i>Provided by ANUgreen</i>
	General	200L	Spill kit already in place. Now moved to better location.
	Bulk oil	Drain cover	<i>Provided by ANUgreen</i>
54 JCS	Organic	200L	Spill kit already in place.
	Hydrocarbon	200L	Spill kit already in place.
	General hazardous	20L	<i>Provided by ANUgreen</i>
44 BoZo	General (hazardous)	20L	Available during training
33 Chemistry	Delivery bay	20L	<i>Available during training</i>
35 RSC	General (delivery bay)	Drain cover	<i>Provided by ANUgreen</i>
	General (waste store)	20L – waste store	<i>Provided by ANUgreen</i>
46 RSBS	Organic	20L	<i>Provided by ANUgreen</i>
	Flammable	20L	<i>Provided by ANUgreen</i>
	Acids/bases	20L	<i>Provided by ANUgreen</i>
61 RSES	Hydrocarbon	Sand-filled bund	<i>Provided by ANUgreen</i>
	Acids/bases	20 L	<i>Provided by ANUgreen</i>
	General	20 L	<i>Provided by ANUgreen</i>
45 Security	Emergency response vehicle	2 x 20L	<i>Provided by ANUgreen</i>
		2 * 100L chemical	<i>Provided by ANUgreen</i>
	Behind vehicle parking space	200L oil – road response	Already in place
		200L oil – creek response	<i>Provided by ANUgreen</i>
		Drain cover	<i>Provided by ANUgreen</i>

In February 2006 the ANU tested the outcomes from this initiative when a large diesel spill occurred when a heavy vehicle travelling through campus cut a corner, broke a drain and ruptured its fuel tank. This occurred close to Sullivan's Creek and diesel was soon observed entering the creek. All of the available oil-water spill response equipment available on campus was deployed in the spill response, which involved effective teamwork between ANUgreen, University Security and Maintenance. Environment ACT was pleased with the result, and there were no indications of environmental harm.

***Oversee the installation of pollution prevention equipment as needed for specific, identified sites. Train relevant technical officers in equipment use***

Training has been provided as part of the handover of the spill kits. The training session has been included on the training register. All spill kits are being registered on the asset register.

***Undertake annual environmental risk audits and continually update comparative environmental risk methodology***

Annual environmental risk audits have been undertaken for each year of this plan, and will continue to be undertaken. Each year the findings are becoming a better representation of ANU's corporate environmental risk profile.

***Review point-source pollution risks on campus and address identified issues***

Ongoing issues are monitored and addressed as they are identified.

***Further develop and implement an internal (within building) environmental risk audit strategy***

This will be incorporated into the ANU Contaminant Risk Assessment, which is presently underway

## RECYCLING AND WASTE MANAGEMENT

**Objective** – To achieve best practice in recycling and waste management

**Target** – Reduce volume/weight of waste going to landfill by 70% (from 2002 levels) by 2008.

**Environmental Performance Indicator:**

Indicator	2002	2003	2004	2005	2006	% variation 2005/6
Tonnes of waste to landfill <sup>(1)</sup>	1664	1370	1367	1293	1208	-6.57%
Cost of waste to landfill <sup>(1)</sup>	\$191,349	\$253,099	\$267,989	\$314,368	\$409,225	+30.2%

1. These figures include field bins and general building waste removed from the site by the main service providers but does not cover construction or hazardous waste.

Indicator	2002	2003	2004	2005	2006	% variation 2005/6
Cost of Waste Disposal and Recycling		\$441,239	\$485,348	\$620,093	\$665,247	+7.3%

The increase in the cost of waste disposal is due to

- 10-15% annual increase in waste disposal
- Increased disposal of animal waste bedding from research departments.
- As with previous year if the hazardous material disposal, secure destruction and JCSPMR are removed from the equation then the % variation for 2005/2006 is 11.7%. This can be attributed to increased service charges per annum.
- New contracts have seen an increase in recycling costs (Paper Cardboard and Co-mingled recycling)
- New contracts have seen a reduction in waste services costs but an increase in waste to landfill charges.

The continued improvement in waste data collection systems and ongoing waste audits has enabled the production of a better picture of the ANU waste stream, detailed below:

	Tonnes	Percentage	Data Accuracy
Waste to landfill	1208.4	68.10	Good <sup>1</sup>
Paper recycling	148.18	8.35	Fair
Cardboard recycling	95.70	5.39	Fair
Co-mingled recycling	122.18	6.89	Poor
Metal recycling	28.04	1.58	Excellent
IT waste recycling	25.30	1.43	Excellent
Furniture recycling	9.07	0.51	Fair
Pallet recycling	3.59	0.20	Good
Fluorescent tube recycling	1.28	0.07	Excellent
Phenomics waste bedding	121.68	6.86	Good
Expanded Polystyrene	0.91	0.05	Good
Cooking Oil	9.45	0.53	Excellent
Print Cartridges/Mobile Phones.	0.56	0.03	Excellent
<b>TOTAL</b>	<b>1774.33</b>	<b>100.00</b>	<b>Fair</b>

1. **Poor** refers to data pertaining to the financial cost of disposal only. **Fair** refers to data pertaining to the financial cost of disposal plus information on service schedules **Good** refers to data pertaining to financial cost, service schedules and volume. **Excellent** refers to data pertaining to financial cost, service schedules, volume and weight.

The ANU continues to improve waste management and recycling practices. The volume of waste to landfill decreased by a 6.57% in 2006. The University has now decreased total waste to landfill by 27.4% (456 tonnes) since 2002. The university's target is to reduce waste to landfill by 70% of 2002 figures (i.e. 500 tonnes per annum), based on the 2006 figures the university will need to find ways to divert a further 708 tonnes per year from landfill to recycling by 2008. This can be achieved if we can implement a viable organic recycling initiative, continue to improve our current recycling and reuse practices and also encourage reductions in waste throughput through community awareness campaigns.

### Status of EMP Actions:

***Establish, in conjunction with stakeholder groups, waste management contracts that promote innovative and flexible strategies to reduce waste and increase recycling***

New contracts to manage waste and recycling at the ANU were established mid year 2006. These new contracts require service providers to provide statistical information on waste and recycling volumes and weights. As a result of this the ANU will now have a better picture of waste and recycling streams, which will provide opportunities to reduce waste volumes and the costs associated with waste disposal and recycling.

**Note:** Even though we are reducing waste to landfill, departments are resisting reductions in services to their skips; therefore less weight is removed with each service. Eg. F&S averaged 461kg for each service to a 4.5m<sup>3</sup> skip; another department averaged less than half of this at 211kg per service, consequently doubling their service costs. Yet another dept. averaged only 67kg for each service to a 3 m<sup>3</sup> bin. Departments need to do what they can to reduce waste costs by ensuring they adopt efficient service regimes.

Visual audits of the twenty six, 3 and 4.5 m<sup>3</sup> skips on campus demonstrate that they are predominantly used to dispose of styrofoam & cardboard packaging, paper, metal, organic material and drink containers, all which are recyclable. So while we now have flexible arrangements with regards to waste disposal and recycling we still require further commitments from stakeholders to ensure we reduce waste to landfill.

***Introduce and maintain a corporate recycling program, which includes the use of standard colours and signs for recycling bins, promotional media and training for the system***

The installation of the public recycling field stations has continued in 2006 with the inclusion of the first public recycling station at Mount Stromlo Observatory and the inclusion of 5 public recycling stations throughout the grounds of Burton & Garran Hall. Also in 2006 the following programs for recycling were established

- Introduction of 1100 litre recycling bins for ANU departments, student residences and Mt Stromlo Observatory.
- Establishment and maintenance of a recycling station for expanded polystyrene recycling (EPS) which includes a 10 cubic metre storage cage. (located at the Gardener's soil yard)
- Establishment of a permanent 9 cubic metre bin for metal recycling (located at F&S yard)

***Establish a community awareness program to promote the reuse of materials, recycling and waste minimization***

Staff and student awareness activities are covered in the Community Awareness section.

***Review the impact of litter on campus and establish recycling points at 'hot spots'***

Recycling points 'hot spots' are well established on campus with the continued installation and management of field recycling stations, including the establishment of field bins at Mt Stromlo and Burton & Garran Hall.

Future improvements could include:

- Installation and trial of metal Cigarette Butt containers at field stations, including awareness program to smokers.
- Removal of all existing garbage field bins.

As requested by building users an assessment of individual building waste management needs has been undertaken and appropriate waste management facilities have been installed. This has also been undertaken with several halls and colleges in order to improve their waste management practices.

***Implement a purchasing policy that promotes the use of products manufactured from recycled material, waste minimisation, material reuse and recycling***

The ANU purchasing policy contains provisions that address environmental concerns, and environmental considerations are included in contracts for the purchase and supply of office equipment.

Further work is required to follow on with significant outcomes in the purchase of recycled paper. As discussed below. ANUgreen continues to work with the University Purchasing and Contracts Office (UPCO) in the development of new environmental purchasing opportunities and guidelines.

The purchase of Toilet consumables, (toilet paper, handtowel, and soaps) are made with preference to environmentally friendly products.

***Purchase of recycled content paper***

Through the University's purchasing contract with Corporate Express the use of 'EXP 50/50', a 50% recycled content paper, and Evolve (a 100% post consumer recycled paper) is being encouraged. Data on paper purchased through Corporate Express is provided below.

In 2006 the University has experienced a 12.9% increase in paper purchased, details of paper purchased at the ANU are included in the table below.

Type of Paper	2003 reams	2004 reams	2005 reams	2006 reams	% variation 2005/6
Virgin	55,823	41,800	38,857	44,736	+15%
Recycled – EXP 50/50	23,439	31,143	29,925	34,679	+16%
Recycled – Evolve	2,320	3,620	6,095	5,235	-14%
Percentage Virgin Fibre	68.4%	54.6%	51.8%	52.8%	+1%
Percentage Recycled	31.6%	45.4%	48.2%	47.2%	-1%
<b>Total</b>	<b>81,582</b>	<b>76,563</b>	<b>74,957</b>	<b>84,650</b>	<b>+12.9%</b>
Reams per EFTSU & FTE	5.32	4.99	5.17	5.88	+13.7%

***Review current waste streams to establish opportunities to transform waste into a resource, which could be reused on campus, or used to generate income for the University***

Metal Recycling – in 2006 sent 28.04 tonnes of steel was collected for recycling. This process has resulted in savings of \$7,005.60 in disposal costs, as well as generating income that was used to offset the cost of other recycling programs.

***Fluorescent Tubes -***

1.28 tonnes of fluorescent tubes were recycled in 2006. This process involves crushing the tubes to allow for the recovery of the glass, metal and mercury.

**Computer and IT Waste** -IT equipment is a large, toxic, and growing waste stream driven by a constant turnover of equipment due to technical obsolescence. Computers, and in particular cathode ray tube monitors, contain heavy metals that can leach out into the environment (each monitor contains up to 2kg of lead). It is also potentially damaging to the ANU, as it is a 'branded' waste that may create a negative image of the University.

Obsolete IT Equipment at the ANU is collected and shipped to a specialist computer recycling facility where it is stripped down into its component parts (plastic, metals, glass) for recycling.

While the resale of computers has been employed in the past, very few computers were sent for resale in 2006 as the demand in the market place has reduced and distributors demand higher quality computers for resale. Also, other departments may resale I.T. equipment bypassing the ANUgreen office

All I.T. equipment sent for recycling was down from 2005, except for monitors (increase +21%) This may suggest that departments are holding onto equipment longer prior to replacing, or that they are employing other disposal methods.

#### **IT equipment recycled in 2005/6**

<b>Item</b>	<b>Units recycled/reused 2005</b>	<b>Units recycled/reused 2006</b>
PC's	487	147
Monitors	713	868
Keyboards	500	55
Printers	233	166

**Furniture** – Excess, old, redundant and broken furniture is also a large proportion of the University's waste stream. Much of this can end up at landfill, even though it is suitable for reuse. The University is now promoting a service to collect and appropriately dispose of excess furniture; this includes the reuse of furniture.

In 2006, 907 items of furniture was collected and recycled. In particular were 560 chairs from Burton & Garran recycled through a local second hand resale company, which would have incurred a cost had they been sent to landfill.

The furniture reuse and recycle program is now an established program and a good way for students and staff to access office resources without costs to the University and an without waste to landfill.

**Construction and demolition waste** – ANUgreen works with Project Managers to ensure construction and demolition waste is recycled through the proper channels. As mentioned in last years report, one of the major projects JCSMR Stage one project, has seen an average 72% of all waste material from the project being recycled. That has since been updated to 76.97% recycled with a target of 80% to be recycled in JCSMR stage two project.

#### **Establish a strategy for managing organic waste**

In 2006, ANUgreen received approval for a 12 month composting trial, in partnership with R5 Solutions (NZ) Ltd., using the 1512 HotRot In-Vessel composting Unit. This trial will run throughout 2007 with a target of processing 50 tonnes of putrescible waste. Organic waste from Halls and Colleges, Café's, Restaurants and Research departments, will be collected and processed, creating compost, soil conditioner and garden fertilizers for use by the

Gardens and Grounds Department. This project has great potential for the future of sustainable waste conversion, not only at the University but in the community and the region.

The 1512 HotRot Unit is capable of processing over 600 tonnes per annum. This is new technology and although there are only two in use in Australia, (one here at the ANU and another in far Nth Queensland), the HotRot composting units are established throughout the world in Hong Kong, the U.K. and New Zealand.

***Develop and implement a waste monitoring and evaluation process that provides information on annual volume, weight and composition of the waste and recycling streams***

In mid year 2006, new waste and recycling contracts commenced. Contractors are now required to provide accurate data on the volume, weight and composition of waste and recycling streams.. This has already lead to a number of improvements for example:

- Improvements in the recorded tonnage of Paper and Cardboard recycling has seen a drop in volumes which reflects more accurate data from contract companies.
- SITA are now providing weights of 3 and 4.5 cubic metre bins, providing a better picture of inefficient waste services on campus.

In 2005 continued auditing indicated that bins generally contain a high percentage (about 40%) of material that could be recycled. This position remains the same for 2006.

## BIODIVERSITY

**Objective** – To manage biodiversity in an ecologically appropriate manner in consultation with the university community

**Target** – Develop and implement a biodiversity management plan

### Environmental Performance Indicator:

Indicator	2007
Community awareness of biodiversity issues	<ul style="list-style-type: none"> <li>• Finalised and published reports for frogs, mammals, birds, invertebrates and review of reptile survey results</li> <li>• Preparation and Launch of Urban Habitat Guidelines for the ACT, a community friendly document seeking to enhance community understanding of the science of urban ecology.</li> <li>• Distributed 10,000 community friendly brochures outlining the importance of urban biodiversity, the results of the survey and the Life in the Suburbs exhibition and website.</li> <li>• 'Life in the Suburbs' – a two week exhibition of the Urban Environment involving environmental groups and programs from across the ACT.</li> <li>• 'Life in the Suburbs' website, <a href="http://www.lifeinthesuburbs.net.au">www.lifeinthesuburbs.net.au</a> - a portal for information on urban ecology and biodiversity, illustrating how to get involved in environmental initiatives across the ACT, from tree planting and frog monitoring to No Waste by 2010.</li> <li>• Conducted print, TV and radio media interviews to promote awareness of the findings and Life in the Suburbs initiative.</li> <li>• Provision of Urban Biodiversity seminars to student, staff and community groups including general tours of campus landscapes, Sustainable Learning Communities, Sustainable Hackett and the AFP Design Consultants for the Majura Firing Range.</li> </ul>

### Status of EMP Actions:

***Undertake a scientifically rigorous ecological survey of the Lower Sullivans Creek Catchment in cooperation with the Australian National Botanic Gardens, The National Museum of Australia, The Sullivans Creek Catchment Group, The ACT Government, the CSIRO and the National Capital Authority***

The Biodiversity program received ongoing support from the National Heritage Trust to:

- prepare and present fauna reports of the Lower Sullivans Creek Catchment Ecological Survey
- prepare and launch the Urban Habitat Guidelines for the ACT
- develop the Life in the Suburbs website to provide information to the community on urban biodiversity and environmental activities in the ACT

The development of a species database of ACT urban wildlife is currently underway. The database will provide an ecological web based reference for students, planners and community members.

Five ANU students have been involved in the research and compilation of species profiles for the database. A PhD student is currently working on assessing bird species distribution

and abundance across the Acton Campus. This information will provide valuable information for campus education initiatives.

The Biodiversity Projects Manager is currently working on synthesising the results of the survey into a Biodiversity Management Plan.

ANUgreen is currently a partner in a collaborative Urban Ecosystem Function project that includes the Fenner School, CSIRO Sustainable Ecosystems, the ACT Department of Conservation and Lands in assessing urban ecological function. The project is currently also seeking the collaboration of the Melbourne and Brisbane City Councils. Project Components to be supported by the collaboration include:

- Post doctorate calibration of Australian tree species in relation to carbon sequestration rates, impact on reducing air pollution, storm water infrastructure costs and energy conservation.
- Investigation of the potential for Honours projects, including the applicability of Landscape Function Analysis to urban landscapes.
- CSIRO Sustainable Ecosystems lead GIS application of post doctorate species calibration and urban typology assessment to determine landscape impact on ecosystem processes.
- Investigation of potential post graduate studies for further study.

### ***Ensure the ANU is meeting all its responsibilities under local and Commonwealth environmental protection and biodiversity legislation***

The ANU continues to acknowledge the responsibilities that arise from its status as a Commonwealth agency, in particular our responsibilities under the Environmental Protection and Biodiversity Conservation Act (1999).

To ensure this responsibility is met, the Biodiversity Projects Manager provides input and recommendations to the development process. The University's Biodiversity Management Plan for the Acton Campus will include a strategy for managing biodiversity assets that are protected or require action under relevant legislation.

In line with our commitments the ANU has developed a Heritage Strategy, which documents how the ANU will manage its Natural, Indigenous and Built heritage. This strategy is discussed further in the Heritage report provided by the Heritage Officer. The Biodiversity Projects Manager works with the Heritage Officer to address issues of concern. Recent identification of a regionally vulnerable species at the Spring Valley Farm has seen the implementation of a population monitoring initiative and landscape rehabilitation project to determine the distribution of and to ensure the retention of the species at the site.

### ***Educate the University community about the Lower Sullivans Creek Catchment Ecological survey and proposed ANU Biodiversity Plan through various media***

Further Details contained in the Community Awareness section below

## TRANSPORT

**Objective** – To positively contribute to addressing sustainable urban transport issues for Canberra

### Targets:

- Increase the efficiency of the vehicle fleet (10% reduction in litres of fuel consumed, 10% reduction in kilometres travelled) with reference to the base year (2002) by 2008, noting that projected annual growth of 1-2% during this period will also need to be offset
- Minimise single occupant car commuting
- Maximise the accessibility and suitability of alternative modes of transport

### Environmental Performance Indicators:

Indicator	Base Year (2002)	2005	2006	% variation (2005/6)
TCO <sub>2</sub> <sup>e</sup> total from fleet <sup>(1)</sup>	0(1100)	0(1022)	0(923)	-9.7%
% of staff/students using alternative transport modes	40.6%		48.6%	NA
Carpooling register participation and usage rates	N/A	170	252	+48.2%

1. The greenhouse emissions arising from the ANU fleet are neutralised through our commitment to the Greenfleet program.

Since 2002, the ANU has achieved a 16% reduction in the Greenhouse gas emissions arising from the use of its vehicle fleet, exceeding its target of 10% by 2008. ANUgreen expects these emissions to further decrease as better fleet management capabilities are expected to result from recent changes to fleet management on campus.

### Status of EMP Actions:

***Develop, in conjunction with University fleet management, a sustainable fleet management strategy proposal, which includes a vehicle reduction and/or fleet recomposition framework***

The Environmental Manager is currently working closely with fleet services on the development of a sustainable fleet management strategy.

### ***Develop strategies to promote the use of alternative transport***

The ANU continues to adopt an innovative approach to promoting alternative transport in a number of areas, including:

#### ***Flexible Transport Package (FTP)***

The FTP allows students to drive to university on Monday's and Fridays, and catch the bus on Tuesday's, Wednesday's and Thursday's. The program is designed to relieve the mid week pressure on parking while providing students with more flexible transport

options. This is a new and innovative approach to transport management, which has not been seen in Australia before. Students can now purchase a FTP for \$60 for one semester; in first semester 2006 25 students purchased this package. While this is approximately half the number for the same period last year, the cost of the package increased by \$25 so as to ensure existing bus riders were not just purchasing the package for cheap tickets.

### ***Secure bike parking***

With a cycling population of over 1800 people, the ANU has the largest concentration of cyclists in the ACT. Taking into consideration the need to ensure cyclists can store their bikes in a safe and secure manner, Facilities and Services have embarked on a program of secure bike shed construction. At present secure bike sheds have been built at the Research School of Chemistry, Coombs Building, Research School of Biological Sciences, The John Curtin School of Medical Research, Copland Precinct and the ANU Medical School.

Plans for a further 60 bicycle hoops near Union Court, the Heinz Arndt Building, the ANU School of Art, and the Centre for Arab and Islamic Studies are currently underway.

### ***“Timely Tredlies” Departmental Bike Program***

In March 2006 the Sustainability Office launched a new and innovative departmental bike program that has a number of environmental, economic and health benefits.

Through the “Timely Tredlies” program over 35 departments around the campus have been supplied with brand new TREK mountain bikes for transport around the campus. Areas that lie on the periphery of the campus and those with employees that frequently travel around the campus were targeted. This has proven to be a very popular initiative, reducing travel times, adding flexibility to transport choices, reducing environmental impact and improving the physical wellbeing of staff. The ANU now has the largest corporate bicycle fleet of its type in Australia and is recognised as a leader in promoting healthy alternative transport options for its employees. There are currently 45 bicycles in the fleet, each having ridden an average of 70km per month, with a total of 38,000 kilometres ridden in the last year.

This initiative has received widespread national media attention from WIN TV, SBS, 666 ABC Canberra, The Australian, The Sydney Morning Herald and The Canberra Times. Of note has been a slot on SBS’s Cycling Central Program.

### ***Subsidised Bicycles for University Lodge***

University Lodge has limited carparking space and a large amount of bicycle storage. In order to support this design and to encourage students to choose the bicycle as their main mode of transport, ANUgreen ran a trial bicycle subsidisation program in 2007.

Students from University Lodge were offered TREK bicycles at a 50% discount. This offer had limited uptake. In part, this was due to problems on the supply end, with the bicycles being difficult to source. However, regardless of this, uptake was such that the program will not be offered again in 2008.

### ***The ANU Bicycle Cooperative***

Easy access to cheap second hand bicycles is one way in which cycling can be made more appealing to new students. In order to address this problem the Sustainability

Office is working with a community disability organisation, LEAD Development, to set up a second hand bicycle workshop. The workshop has been running since February 2007 and more than 50 bicycles have been repaired and sold to students.

The workshop is staffed by a LEAD employee as well as a group of young disabled people. The Bicycle Cooperative not only encourages the use of alternative transport, but it also provides a supportive community environment for LEAD clients and ANU students. Students are also able to learn valuable bicycle maintenance skills.

***In consultation with relevant University planning groups, review campus planning issues to determine the impact on intra-campus transport requirements***

This is undertaken through the transport and cycling reference groups.

***Identify and promote alternatives to products and materials with unnecessary transport and freight impacts***

This has yet to be undertaken and will be reviewed in the development of the next Sustainable Transport Plan.

***Undertake research into what influences transport choices***

A comprehensive survey of the transport-related behaviour of the university community was undertaken in late 2003, and was repeated mid 2006.

***Review the viability of car-pooling on campus, including establishing a trial program***

ANUgreen has established a car-pooling program on campus that uses a web-based database to match potential car poolers. This software was donated free of charge by the RACV and was adapted to the ACT and the ANU. All staff and students at the ANU have access to the web site, and the website has been heavily promoted through posters, stickers, back of the loo posters, and a large banner in Union Court.

Currently there are 252 registered users.

***Explore opportunities for salary packaging to encourage use of public or sustainable forms of transport***

During 2005 the Environmental Manager, with the help of Finance and Business Services undertook an analysis of salary sacrificing possibilities for sustainable transport. However, due to problems with Fringe Benefits Tax it was decided that this was problematic at present.

***Undertake a sustainable transport community awareness campaign, promoting diversity in transport choice***

See the community awareness section.

***Develop an ANU Ride to Uni program***

With over 520 members, the ANU Ride2Uni program is now one of the largest, if not the largest, bicycle user group in Australia. Some of the programs carried out over the past year include:

- A Ride2Uni breakfast attended by over 150 cyclists
- Ride2Uni bike maintenance courses attended by 70 cyclists
- The sale of over \$15,000 worth of subsidised bike equipment to over 450 students and staff of the ANU
- The sale of discounted Canberra Cycleways Maps to 200 new ANU students
- An audit of cycle hazards, as noted by Ride2Uni members, across campus (these hazards are slowly being addressed)

***Foster increased linkages with outside bodies such as the ACT Government, Pedal Power and ACTION to promote sustainable transport use***

The ANU continues to work closely with ACTION buses on the promotion of bus catching by ANU students. The ANU is also one of 3 corporate members' of Pedal Power. The ANU has been asked to participate in a parliamentary inquiry on ACTION Buses and sustainable transport.

As mentioned above, linkages have also been developed with the disability organisation LEAD Development.

***Conduct an audit of cycling access and safety to and through campus***

Using the Ride2Uni contacts a cycling access and safety audit was conducted in 2006 as a follow up to the 2003 audit.

## COMMUNITY AWARENESS

**Objective:** To promote corporate and community awareness of environmental issues.

**Target:** Increase the number of people / areas considering environmental impact in decisions. Increase awareness of ANUgreen as a source of assistance in relation to environmental impact.

### Performance indicators

**Unsolicited requests for assistance from other areas of campus:** approximately 250 requests and questions through the email address [anugreen@anu.edu.au](mailto:anugreen@anu.edu.au) and the feedback form on our website; and a further 200 through [recycle@anu.edu.au](mailto:recycle@anu.edu.au). Topics include water wastage, ideas for environmental programs and actions on campus, requests for advice and assistance on how we implemented particular programs, requests for more bins, and computer recycling.

Number of visits to the ANUgreen website in 2006: 180,000 up from 66,000 2004

**Recognition of the ANUgreen name:** A recent survey by a visiting American research student studying sustainability in Australian universities found that ANU students had the highest awareness of campus sustainability issues (68%) when compared with students from 4 other large universities (35%-45%). Another recent Masters thesis from the ANU examining the same issue found that 70% of ANU students believe the ANU has a strong commitment to sustainability.

### Status of EMP actions:

There is a communications component to the management plan for every area of environmental impact for example:

***11.9 Undertake a sustainable transport community awareness campaign, promoting diversity in transport choice.***

***6.1 Develop and implement energy conservation & greenhouse awareness programs for staff and students, integrated with other environmental initiatives***

***7.3 Develop and implement a water conservation awareness campaign for staff and students, integrated into other environmental initiatives***

***9.3 Establish a community awareness program to promote the reuse of materials, recycling and waste minimisation***

### Staff

In 2006 a number of initiatives were implemented that aimed to raise staff awareness of campus environmental issues, these included: the "Back of the Loo" poster campaign, the expansion of the Green Office Program to 25 departments; the distribution of

ANUgreen sustainability postcards in strategic locations throughout campus; the rolling out and promotion of the Departmental bike and Ride2Uni programs; the promotion of the ANU Carpooling program through signs in main ANU carparks; and through articles in On Campus.

## **Students**

Student communication centred on promoting recycling and transport, particularly cycling and Canberra's bus network. These are points 9.3 and 11.9 of the environmental management plan. Orientation Week and World Environment Day were the two main events focused on communication with students.

### ***7.5 Develop and implement a community stormwater awareness campaign, which includes a drain stencilling component***

### ***10.4 Educate the University community about the Lower Sullivan's Creek Catchment Ecological survey and proposed ANU Biodiversity Plan through various media.***

Survey work on the Ecological Survey finished in 2003, and the ANU biodiversity plan is still in development pending completion of the survey analysis. However the ANUgreen office considers that communication about biodiversity should be broader than just promoting our own activities. Biodiversity is a complex environmental issue, and we need to work to communicate what biodiversity is, and why it is important to the University. During 2005 we promoted this awareness of biodiversity, including its relationship with water and waste issues. We used events surrounding National Water Week as the main way of doing this, including Clean Up the Creek days and Clean Up Australia Day. In March 2006 ANUgreen released a Biodiversity postcard that discusses the negative impacts of inappropriate cigarette butt disposal.

### ***11.16 Review staff induction and transport information to include information about alternative modes of transport***

The ANU staff induction manual now refers to the ANU environment policy, and to Action buses.

### ***12.1 Review design of ANUgreen website***

The ANUgreen website underwent a significant review and restructure in 2005 and now contains much more up to date information. The ANU Transport website, which is also maintained by ANUgreen, also underwent a significant transformation. Further restructure and update is anticipated for mid 2007.

### ***12.2 Promote ANUgreen activities and operations in relevant University publications.***

**ANUgreen promotes its activities in a number of ANU publications including: student diary advertising and transport information; numerous articles in “On Campus” relating to ANUgreen programs and events and ANUgreen details on official ANU Calendar.**

**ANUgreen also releases a quarterly newsletter to over 300 staff which contains comprehensive details of its activities.**

### ***12.3 Ensure ANUgreen team members are appropriately trained in all aspects of environmental management through attendance at conferences and training seminars.***

Staff attended the Australasian Campus Towards Sustainability national conference In September, 2006. ANUgreen staff also received IT, Communications and Marketing training in 2006, including the development of websites and desktop publishing

### ***12.4 Promote ANUgreen as an internal environmental consulting unit within the campus.***

### ***12.5 Maintain and support the Inter-Hall Environmental Working Group to promote environmental management in the Halls & Colleges.***

The Inter-Hall Environmental Working Group has faced difficulties in the past due to lack of student commitment. Since the beginning of 2007 a large number of students have been in contact with the Sustainability Office, seeking support and information. In order to cater to this need and provide a variety of levels of support, students are being integrated into the new Sustainability at Work program.

A new Student accommodation environmental committee has been established, membership includes Heads of Halls, Deans, senior students, representatives from University Accommodation Services and members of ANUgreen. This committee is chaired by Andrei Lena from Toad Hall. This committee has drafted and approved an Environmental Management Plan for student accommodation and is working to operationalise that plan.

### ***12.6 Establish an ANUgreen electronic mailing list and provide electronic newsletters to subscribers.***

Three newsletters were published in 2006, as well as ad-hoc announcements of upcoming events. A separate email list for cyclists is used to keep staff and students informed of cycling issues and opportunities. This e-mail list has over 500 subscribers.

## ***12.7 Identify opportunities to amalgamate corporate environmental programs with academic activity, while continuing to support interdisciplinary initiatives.***

**There are numerous ways in which ANUgreen works to amalgamate corporate environmental programs with academic activity. Indeed this is one of the strengths of the ANUgreen program and something that sets it apart from corporate sustainability initiatives at other universities. Examples of these initiatives include:**

**Sustainability Learning Community** - The ANU Sustainability Learning Community (SLC) is a group of students and staff from across the university who are interested in tackling day to day environmental and sustainability related issues on campus. The SLC aims to provide a supportive network and a variety of opportunities to get involved in the campus community. The SLC provides exposure to local sustainability related issues by linking classroom theory to “real life” problems we face here at the ANU.

In the last year the SLC has:

- Started an organic community garden on campus
- Run workshops on organic gardening and vermicomposting
- Collaborated on a campus landscape rehabilitation project
- Planted trees
- Held regular social events and BBQs to build a sense of community
- Visited a sustainably designed home
- Planned two World Environment Day Great Green Debates in collaboration with Bruce Hall and BruceGreen students

**Integrating Sustainability Project (ISP) – This innovative project is the first of its kind in Australia. The ISP a collaboration between ANUgreen and The Fenner School that works to further consolidate the links between corporate sustainability and teaching and learning, as well as promoting the incorporation of more relevant sustainability content in the undergraduate curriculum across the university. The ISP team consists of Dr David Carpenter (ANUgreen Manager, and Manager of the ISP), Dr Rob Dyball (Academic collaborator from the Human Ecology program), Jennifer McMillin (Post Doc Research Fellow) and Carina Wyborn (Research Assistant).**

**The ISP has a number of initiatives underway including: further strengthening opportunities for students to undertake research on practical, campus based projects (over 150 student projects have been completed so far); managing the implementation of the ANUgreen internship program (where up to 15 students are chosen to work with ANUgreen projects); undertaking empirical research in the area of Education for Sustainability (EfS); undertaking course audits and developing professional training for academics in the area of EfS; working to operationalise the principles of the Talloires declaration; and applying for external funding for EfS research.**

**The Green Steps program – ANUgreen also manages the implementation of the Green Steps program, which is a nationally recognised environmental management training program that gives students the skills to act as environmental change agents in the workplace. As part of this program students undertake an internal placement at the ANU working on an**

**ANUgreen project, and they also work with an external agency for 12 days gaining valuable work experience. This is a very competitive program and one that leads to employment for a lot of students.**

**Guest Lectureships in ANU Environmental Courses – ANUgreen staff give guest lectures in a variety of courses each year. The topics of these lectures range from case studies of ANU’s Sustainability Program, to urban biodiversity, corporate environmental management and environmental risk.**

***12.8 Investigate opportunities for improving environmental awareness and promoting ANUgreen through supporting conferences, workshops and seminars***

**During 2006 the work of ANUgreen was actively promoted both on and off campus in a variety of fora, as listed below:**

Invited presentation by the Manager of ANUgreen at the Environmental Management for Sustainable Universities Conference in Wisconsin

Invited presentation by the Manager of ANUgreen at Threatened Species Day at the University of New England

Participation by the Manager of ANUgreen in the Higher Education Expert Working Group on Sustainability roundtable in Melbourne

Invited presentation by the Manager of ANUgreen at the Australian Tertiary Education Manager’s Conference in Sydney

Keynote address by the Manager of ANUgreen at the Victorian VET Facilities Management conference in Albury

Presentations by a number of staff at the 2006 Australasian Campuses Towards Sustainability Conference in Ballarat

Numerous information seminars given by all ANUgreen staff for students at ANU

Green Office program workshops and seminars for staff and students

In-field urban biodiversity walks for ANU staff and students

Heritage walks of ANU for staff and students

***12.9 Undertake research into aspects of corporate environmental management that are relevant to the aims of ANUgreen and publish results.***

**The Manager of the ANUgreen Dr David Carpenter edited a publication entitled “Sustainability in the Australasian University Context” with Professor Walter Leal Filho from TuTech University, Hamburg that was published by Peter Lang Academic Publishers, Frankfurt in June 2006. A number of chapters from this book reference the sustainability initiatives undertaken at the ANU, including:**

“Planning for Biodiversity: A Challenge for Universities” David Carpenter, Beth Mitchell, Bart Meehan (Facilities and Services Division)

“Human Ecology and Education for Sustainability” Dr Rob Dyball (SRES) and David Carpenter, (Facilities and Services)

“The Green Steps Program: Fostering Environmental Change Agents” Stefan Kaufman PhD Candidate, (SRES)

“Art for earth’s sake: creative and interdisciplinary collaborations for sustainability in the tertiary sector” John Reid, (School of Art), David Carpenter and Bart Meehan, (Facilities and Services)

“A curriculum for a cause?” Kate Sherren and Dr Libby Robin, (CRES)

“Pillars of Society: The Historical Context for Sustainability and Higher Education in Australia” Kate Sherren, (CRES)

“Towards a model for best practice recycling in the tertiary sector” Dr Robin Tennant – Wood, (SRES) and John Sullivan, (Facilities and Services)

“Preventing Pollution from the Australian National University” Dr Su Wildriver, (CRES and Facilities and Services)

**Dr Carpenter also co-authored a chapter with Dr Robert Dyball from the Fenner School for inclusion in an international publication on Education for Sustainability, details as follows:**

Carpenter, D., Dyball, R. (2006). Outside In – Experiential Education for Sustainability. Chapter in Walter Leal Filho (ed) Innovation, Education and Communication for Sustainable Development. Pages 379-394. Peter Lang

***12.10 Provide advice to University management on progress with regard to its obligations as a signatory to national and international environmental declarations.***

The staff of ANUgreen consistently provides details to management with regards to progress towards the objectives of the Talloires Declaration and other declarations it has signed.

***12.11 Continue the ANUgreen Environmental Achievement Awards***

An award was presented in April 2006 for action undertaken in 2005.

***12.12 Facilitate the development of publications of brochures and monographs related to specific environmental issues affecting the campus***

Please refer to 12.9 above

## **Outreach activities**

In addition to our on-campus promotional activities, the ANUgreen program contributed to the University's positive image in the community through outreach activities including:

**External media coverage on radio, TV and print: for Healthpact award, GreenCorps program, Departmental bike program, Mobile Muster Phone recycling initiative, ANU-Dell Computer recycling initiative and Life in the Suburbs Launch**

**Supporting environmental education for young people through the GreenCorps program on ANU campus**

**Lower Sullivans Creek Biodiversity Survey in partnership with the Australian National Botanic Gardens, National Museum, CSIRO and the Lower Sullivans Creek Catchment Group.**

**Liaison with the ACT government NoWaste program, including some consulting work**

**Liaison with Federal government (Parliament House, Centrelink, DFAT), including some consulting work**

**Visitors from other universities toured the ANUgreen program, including Mahidol University, Thailand and visitors from University of Queensland, University of Western Australia, University of Tasmania and CSIRO**

**Participation in the ACT Healthpact Sustainability and Health Workgroup**

**CIT guest lectures on the evolution of the ANUgreen program, and presentations to the CIT environment group**

**ANUgreen staff contribution to organising the Australian Campuses Towards Sustainability conference, and presentations at the conference**

**Attendance at the Australian Greenhouse Office Greenhouse Plus Workshop**

**Discussions with the ACT Government in relation to the ACT Sustainable Transport Plan and the ACT Busway project**

**Membership of the Board of the Canberra Environment and Sustainability Resource Centre**

**Liaison with the Southern Rivers Catchment Management Authority, National Parks and Wildlife Service, and Bateman's Bay Aboriginal Land Council in the submission of a successful Envirotrust grant (\$40,000) for the conservation of a midden complex on the ANU Kioloa Campus.**

**Establishing the ANU Bike Co-op in cooperation with LEAD (a local group that provide outreach and training for physically and mentally disabled people)**

**Discussions with senior advisor for Senator Julie Bishop on sustainability initiatives in the Australian tertiary sector**

**Working with Greening Australia on the rehabilitation of Spring Valley Farm**

## ENVIRONMENTAL MANAGEMENT

**Objective** – To promote corporate and community use of ANUgreen as an internal environmental advisory unit within the campus to assist individual areas within the University in developing integrated environmental management systems

**Target** – Develop a cross institutional approach to environmental management. All major areas within the University to have developed a local EMS by 2008

### Environmental Performance Indicator:

Indicator	2004	2005	2006	Variation
No. of areas within the University to have developed a local environmental management plan	1	1	2	100%

The ANU needs to improve in the area of local environmental management. This will be one of the major initiatives of ANUgreen in 2007. While the university has achieved some admirable goals in its corporate EMP, in order to achieve all of its sustainability goals, it needs to decentralise some aspects of environmental management to local areas. In order to achieve this the university will implement a formal Environmental Officer program (to complement the Green Office Program), accompanied by environmental management training for officers and support in the development of local area EMP's.

### Status of EMP Actions:

#### ***Develop and implement a program to assist areas develop their own Environmental Management Systems***

ANUgreen continues to do this on an ongoing basis. In 2007 an Environmental management Plan for University Accommodation has been developed and will be implemented over the next 4 years.

#### ***Establish the ANUgreen team as the primary resource to assist areas in the development of an EMS***

#### ***Develop and Maintain University-wide Environmentally Sustainable Design (ESD) standards for capital developments, refurbishments and maintenance***

The University established ESD standards in January 2003 that are now applied to all new buildings and major refurbishments.

#### ***Ensure members of the ANUgreen team are involved in all relevant stages (design, value management etc) of capital developments and major refurbishments***

The Facilities and Services Division has implemented procedures that ensure that staff from the ANUgreen program are consulted at appropriate stages during the design and construction of all new facilities and major refurbishments. This has been a successful process during the year that has enabled the inclusion of many environmental features in our new facilities. In particular, environmental inclusions have included:

- Passive and hybrid cooling systems
- Lighting control systems
- Variable speed drives
- Heat recovery
- Quantum solar hot water
- External shading
- Native habitat features (natural ponds) in landscapes
- Waterless urinals