



THE AUSTRALIAN NATIONAL UNIVERSITY

**Annual Report
of the
Environmental Management Planning Committee
to the
Vice-Chancellor
1 April 2005 to 31 March 2006**

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MAJOR ENVIRONMENTAL MANAGEMENT ACHIEVEMENTS OF 2005/2006

The ANU continues to work towards best practice in corporate environmental management. After 7 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 2005 are listed below:

- The ANU has achieved its water conservation target of 10% below 2002 figures by 2008 and has reduced its water consumption by 123 million litres in the last two years.
- The ANU was awarded the ACT Health Promotion Award for its work in promoting active transport
- ANUgreen launched a departmental bike program, which supplied 32 departments around campus with bicycles for campus transport, this project will reduce greenhouse gas emissions and increase efficiency, and is the largest corporate bike fleet in Australia
- The ANU Ride2Uni program now has 450 members, up from 270 in 2004
- The ANU was awarded \$37,000 from the NSW Government for the conservation of a midden complex at its Kioloa campus
- The ANU has been awarded \$40,000 from the Federal Government's Community Water Grant Program for a water conservation initiative at the Research School of Chemistry that will decrease the University's water consumption by 26 million litres per annum, and save the university \$39,000 per year.
- The ANU Green Office program has expanded and now includes 25 departments around campus
- A book that highlights the sustainability initiatives of the Australasian tertiary sector and in particular The ANU was edited by the Manager of the Sustainability Office, in partnership with a German academic, and will be published by Peter Lang Academic Publishers (Frankfurt) in 2006. This book has a number of contributions from academic and general staff from ANU
- 37 officers of the University were trained in best practice spill response
- Industrial spill kits were distributed to 8 areas around campus
- There was a 68% increase in the use of 100% post consumer recycled paper in 2005 (the use of virgin paper as a percentage of total paper use declined)
- Paper use at the ANU has decreased by 1606 reams (803,000 sheets) in 2005
- 400 items of furniture were reused and recycled in 2005 saving the university approximately \$15,000 in furniture costs
- 1700 items of IT equipment were reused or recycled in 2005
- The ANU has developed its Heritage Strategy in accordance with its requirements under the Environment Protection and Biodiversity Conservation ACT (1999)
- There was a 2% reduction in greenhouse gas emissions produced by the university vehicle fleet
- ANUgreen completely reviewed its website and this service is now more up to date and contains an abundance of sustainability information
- The university reduced its waste to landfill by a further 5% in 2005. The weight of waste to landfill in 2005 was 371 tonnes (22%) less than 2002 (the base year) despite a 23% increase in Gross Floor Area over that period and despite increases in activity and capital development throughout the campus. Based on current disposal charges and factoring in the cost of recycling this initiative has saved the university approximately \$55,000 per year.
- Of the \$55,000 mentioned above, paper recycling at the ANU (which now stands at 5 tonnes per week) saves the university approximately \$39,000 per year (factoring in the cost of paper recycling).

INTRODUCTION

This report details initiatives undertaken to improve environmental performance within University activities during the period 1 April 2005 – 31 March 2006. 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) nominee – Mr Bart Meehan
Occupational Health & Safety Officer - Mr Roy Schmid

Members representing:

Business Managers Group	Mr Rana Ganguly
Academic Staff (The Faculties)	Mr Roger Burritt
General Staff	Vacant
National Institute of the Arts	Mr John Reid
The Institute	Vacant
Heads of Halls & Colleges	Mr Keith Conley
ANU Students Association	Ms Aparna Rao/Ms Laura Crespo
Proxy: ANUSA Environmental Collective	Mr Julian Hay
PARSA	Mr Steve Refshauge
ANU Union	Mr David Sykes
Students - Halls and Colleges	Vacant

Ad Hoc Membership

Technical Expert - Dr Liam Waldron
Manager, Sustainability Office- Mr David Carpenter
Energy and Water Conservation Manager- Mr John Sullivan
Environmental Risk Officer - Dr Su Wild River
Biodiversity Project Manager – Ms Beth Mitchell
Green Office Coordinator – Ms Clare Lawlor
Cleaning & Recycling Coordinator – Mr Barry Hughes

Secretariat - Amanda Hart

The structure of this committee will be reviewed in 2006 to reflect the new College arrangements.

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 ¹ (2002)	2004	2005	% variation (2004/5)
GJ energy per EFTSU & FTE	26.5	32.74	31.44	-3.9%
tCO ₂ ^e per EFTSU & FTE	5.65	6.66	6.68	+0.3%
GJ energy per m ²	0.99	1.08	0.97	-10.2%
kg CO ₂ ^e per m ²	212	220	207	-5.9%

Total number of Equivalent Full Time Student Units (EFTSU) and Full Time Equivalent Staff (FTE) was 14,499 in 2005

CO₂^e emissions calculated at a rate of 1.054 kgCO₂e/kWh electricity and 68.0 kg CO₂e/GJ gas consumed.

Total building space in m² by end of 2005 was 468,181 m² up from 416,452m² and in 2004

CO₂^e = Carbon Dioxide equivalent units, a standard unit for measuring greenhouse gas emissions.

Total energy use for 2005 was 455,971 GJ comprising:

- 81,459 MWh (293,252 GJ) of electricity – up 3% from 79,065MWh (284,632 GJ) in 2004
- 162,719 GJ of gas down 2% from 165,982 GJ of gas in 2004
- This equated to CO₂^e emissions of 96,923 tonnes, an increase of 8488 tonnes over 2004 figure. Please note the majority of this increase was due to a change in the emission factor used to calculate CO₂^e emissions in line with advice from The Australian Greenhouse Office.

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 m² have been improving total consumption in terms of Gigajoules continues to increase. The university will have to invest in major demand side abatement activities, green energy purchase or generation and refurbishment activity if it is to achieve its target in this area.

¹ Updated with 2005 emission factors

Status of EMP Actions:

6.1 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.

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

During 2005 the university continued to improve on data collection processes and the development of performance indicators and reporting. This is still an outstanding issue that requires further attention so that the university can provide relevant, timely and accurate data to internal and external stakeholders for individual buildings and business units as well as the whole campus.

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

6.4 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. Aside from technologies the university is also investigating applying for Greenhouse Gas Abatement Certificates for its demand side abatement activities. These tradable certificates will enhance the financial viability of energy conservation projects.

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

The ANU contract for the purchase of 'green' power expired in September 2004. The university has taken the opportunity to assess options for the purchase of green power products. Several new government charges relating to renewable energy and greenhouse gas reductions have also been introduced that have a direct financial impact upon the university. The university will adopt a new green power strategy in 2006 that reflects the current and emerging energy market conditions.

6.6 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.

6.7 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.

6.8 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.

6.9 Establish clauses for inclusion in all contracts for services that include specific provisions, which encourage contractors to develop energy efficient work practices.

6.10 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. Opportunities to establish exemplar ESD projects as part of the City West development are being explored.

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	% variation 2004/5
kl of water consumed	746,901	619,377	623,966	+0.74
kl water per EFTSU & FTE	52.62	44.99	43.03	-4.35%

In 2005 water use at the ANU increased slightly over 2004. However, water continues to be used more efficiently as the KPI (kl water per EFTSU & FTE) above indicates. The ANU has already achieved its target of reducing its water consumption to 10% below 2002 levels by 2008, and will continue with its water conservation measures.

Status of EMP Actions:

7.1 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.

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

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

7.3 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.

7.4 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	variation 2004/5
No. of EPA breaches relating to stormwater identified during campus environmental risk assessments and other inspections	5	0	1	1

Status of EMP Actions:

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

The drain stencilling campaign has been well received, and useful in achieving community education. However most of the stencils that were applied during 2002 have now been largely rubbed off. A more permanent approach would be useful, since the message is perpetual, while staff and student populations change. Some agencies use metal plaques attached to drains. Road marking paint is another possibility with greater longevity than simple spray paint. We probably need a range of approaches since we have many different types of drains.

7.6 Conduct biennial reviews of water quality in Sullivan's Creek

Water quality testing began in earnest in August 2004, after ANUgreen purchased a water quality testing kit. Three months of testing was carried out in 2004. A black discolouration of Sullivan's Creek, combined with a strong odour during an intense rain event in February 2006 encouraged Facilities and Services Division to sample for faecal coliforms. Testing on the samples was conducted by Ecwise Environmental (an international company providing tailored environmental solutions to a broad client base). The results show extremely high levels of coliforms were present at the time of the sample – well above safe levels for any type of water contact. The implications of this finding are still being considered, but they do include a need for further sampling of faecal coliforms during different weather and seasonal conditions, as well as at different parts of the creek. This testing can help to ensure that The ANU is not adding to the faecal coliform count through faults in stormwater and sewage systems.

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

Completed in 2002.

7.8 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. Sediment traps have been installed at several drains at the School of Art. An oil-water separator has been installed at the Research School of Physical Sciences and Engineering.

The trial in Union Court of a potentially cost-effective, easy to clean sediment trap for public areas has been successful. Cigarette butts and other litter has been caught and kept before it reaches Sullivan's Creek. More of these sediment traps have been installed in other locations, and a preventative management program is being developed to ensure that they are adequately serviced.

7.9 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. There has been interest in both versions from CSIRO and the University of Sydney.

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

During 2005, 66 Technical Officers and other staff took part in one-hour training sessions, held in different parts of the campus. About 80 cleaners received the 5-minute training.

A one-hour in-depth training session on environmental risk, waste management and recycling was held with the cleaning team at the University Union building in 2003. The 2003 Environmental Risk Management Report gives the details.

http://www.anu.edu.au/facilities/anugreen/EMPC/Reports/2003_environmental_risk.pdf

7.11 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.

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

This activity has not been undertaken as yet. It will be connected with the Biodiversity plan when practical.

7.13 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. The 37 officers who took part in the training signed a training completion form confirming that they understood the new policies for areas to prevent stormwater pollution.

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

Performance Indicator:

Indicator	2003	2004	2005	% variation 2003/4
Percentage residual risk based on CERAM methodology ⁽¹⁾	31%	30%	26%	4%
No. of technical officers trained in stormwater pollution prevention measures	66	0	37	NA
No. of actions that could attract infringements under the ACT EPA.	5	0	1	NA

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:

8.1 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 1.5 days a week as the ANU Environmental Risk and Pollution Prevention Officer.

8.2 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 four to 16 during 2005 as a result of this ANUgreen initiative. This includes three 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 General Bulk oil	20L 200L Drain cover	Provided by ANUgreen Spill kit already in place. Now moved to better location. Provided by ANUgreen
54 JCS	Organic Hydrocarbon General hazardous	200L 200L 20L	Spill kit already in place. Spill kit already in place. Provided by ANUgreen
44 BoZo	General (hazardous)	20L	Available during training
33 Chemistry	Delivery bay	20L	Available during training
35 RSC	General (delivery bay) General (waste store)	Drain cover 20L – waste store	Provided by ANUgreen Provided by ANUgreen
46 RSBS	Organic Flammable Acids/bases	20L 20L 20L	Provided by ANUgreen Provided by ANUgreen Provided by ANUgreen
61 RSES	Hydrocarbon Acids/bases General	Sand-filled bund 20 L 20 L	Provided by ANUgreen Provided by ANUgreen Provided by ANUgreen
45 Security	Emergency response vehicle Behind vehicle parking space	2 x 20L 2 * 100L chemical 200L oil – road response 200L oil – creek response Drain cover	Provided by ANUgreen Provided by ANUgreen Already in place Provided by ANUgreen Provided by ANUgreen

In February 2006 the ANU tested the outcomes from this initiative when 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 were pleased with the result, and there were no indications of environmental harm.

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

Training is being provided as part of the handover of the spill kits. Fifty staff at the University have now received chemical spill response training (OHS23). There is also a central spill response station at Facilities and Services, ready for deployment to cover any foreseeable spill that we might have at The ANU. The Security team is ready for the first response. ANUgreen and University Maintenance staff trained to assist the spill cleanup. Spill Kits are being entered in the asset register database.

8.4 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. Reports from 2001 are available through: <http://www.anu.edu.au/facilities/anugreen/EMPC/Reports/index.html>

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

Ongoing. Issues are being addressed as they are identified.

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

This will be incorporated into the 2006 Environmental Risk Report

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	% variation 2004/5
Tonnes of waste to landfill ⁽¹⁾	1664	1370	1367	1293	-5.4%
Cost of waste to landfill ⁽¹⁾	\$191,349	\$253,099	\$267,989	\$314,368	+17.3%

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	% variation 2004/5
Cost of Waste Disposal		\$441,239	\$485,348	\$620,093	27.7%

The increase in disposal charges for 2005 is attributed to increases in the volume of hazardous material disposed of after the RSC fire, increases in waste disposal service charges (which range from 10% to 15% depending on the supplier), the disposal of waste mice bedding from the Phenomics Facility, and the increases in secure destruction. If the hazardous material disposal, secure destruction and waste bedding is removed from the equation then the % variation for 2004/5 is 12.3% with can be attributed to increased service charges for waste disposal.

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	1293.4	64.76	Poor ¹
Paper recycling	246.93	12.36	Fair
Cardboard recycling	167.7	8.40	Fair
Co-mingled recycling	84.6	4.24	Good
Metal recycling	26.78	1.34	Excellent
IT waste recycling	21.8	1.09	Fair
Furniture recycling	5	0.25	Poor
Pallet recycling			Fair
Fluorescent tube recycling	1.16	0.06	Excellent
Phenomics waste bedding	150	7.51	Good
TOTAL	1997.37		Fair

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 its waste management and recycling practices. The volume of waste to landfill decreased by a further 5.4% in 2005 despite increases in campus operations. The University has now decreased its total waste to landfill by 22% (or 371 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 2005 figures the university will need to find ways to divert another 793 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:

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

In 2005 the ANU released a Request for tender Document to establish contracts for the waste management and recycling services on the ANU campus. The intent of this process was to ensure that these services and service providers were able to work with and assist the ANU in reducing the volume of waste being directed to landfill. It is anticipated that the new contracts will be in place by mid 2006.

9.2 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 2005 with a total of 36 stations now in place. Through these stations 84.6 tonnes of material was recycled in 2005.

9.3 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.

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

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.

The installation of public field recycling stations has progressed, and old garbage field bins have been replaced with new recycling stations.

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. One of the most significant outcomes in this area has been the large increase in the use of recycled paper, as discussed below. ANUgreen continues to work closely with the University Purchasing and Contracts Office (UPCO) in the development of new environmental purchasing opportunities and guidelines.

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.

Type of Paper	2003 reams	2004 reams	2005 reams	% variation 2004/5
Virgin	55,823	41,800	38,857	-7%
Recycled – EXP 50/50	23,439	31,143	29,925	-3.9%
Recycled – Evolve	2,320	3,620	6,095	+68%
Percentage Virgin Fibre	68.4%	54.6%	51.8%	-2.8%
Percentage Recycled	31.6%	45.4%	48.2%	+2.8%
Total	81,582	76,563	74,957	-2%
Reams per EFTSU & FTE	5.32	4.99	5.17	+3.6%

9.6 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 - Metal recycling in 2005 saw 26.78 tonnes of steel collected for recycling. This process has resulted in savings of around \$4800 in the disposal cost.

Fluorescent Tubes – Fluoro tube recycling in 2005 resulted in 1.16 tonnes of tubes being collected for recycling by Chemsal. This process involves crushing the tubes to allow for the recovery of the glass, metal and mercury from the tubes.

Computers and other IT equipment – Computers and IT equipment are 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 can contain up to 2kg of lead). It is also potentially damaging to the ANU, as it is a 'branded' waste that may create negative images of the University.

The University produces a diverse range of IT waste that can be dealt with in a range of different ways. Three distinct classes of waste have been identified and strategies developed for each. Relatively new equipment - generally only a few years old - can often be resold when the technology is upgraded. Whilst it may not meet the needs of the University there is a strong market for this equipment with staff, students and the public. When such equipment becomes available the University seeks to resell it as soon as possible to realise maximum resale value. In 2005 8.7% of recycled IT equipment was disposed of in this way.

Equipment that is damaged or faulty and has no functional use is collected and shipped to a specialist computer recycling facility where it is stripped down into its component parts (plastic, metals, glass) for recycling. In 2005 91.3% of IT equipment collected was disposed of in this way.

IT equipment recycled in 2005

Item	Units recycled/reused
PC's	487
Monitors	713
Keyboards	500
Printers	233

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 2005, 396 items of furniture was collected and recycled. 27% of this furniture was reused on campus, 73% was recycled through a local furniture recycling company. The reuse of this furniture saved the university approximately \$15,000 in furniture costs.

Construction and demolition waste – where possible ANUgreen works with Project Managers to ensure construction and demolition waste is recycled through the proper channels. One of the major projects worth comment in this area would be the achievement of the JCSMR Stage one project, which has seen an average 72% of all waste material from the project being recycled.

9.7 Establish a strategy for managing organic waste

During 2005 the University continued to assess a number of organic waste recycling technologies for installation on campus. In 2005 the ANU put out an expression of interest for the collection and management of organic material but there was no interest from the market. The ANU then proceeded to engage directly with possible partners. As a result of this the ANU is discussing with Thiess the possibility of leasing a HOTROT R5 in vessel composting unit. The Sustainability Office intends to run a one-year trial of this technology in 2006 and estimates that this technology has the potential to reduce the University’s waste to landfill by 10%-20%, and substantially decrease the annual cost of waste to landfill, particularly the disposal of waste mice bedding from the Phenomics facility.

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

The last year has seen a substantial improvement in the collection and analysis of waste and recycling data at the ANU. Data collection systems have been developed and are now adopted by several waste and recycling providers on campus. Excellent data is being received for co-mingled recycling, waste field stations and for the majority of the halls of residence. Paper and cardboard recycling data on campus is still poor and is based on estimates rather than actual weights and volumes. Waste data for bulk waste skips is also poor, as it has to be extrapolated from billing that does not reflect real waste volumes or weight. Even with the limitations in data collection the University has been able to produce a reasonable picture of total waste amounts and types for the 2005 calendar year.

The continued use of the ANUgreen waste auditing process makes it possible to provide information on the composition of the general waste stream, and gives us accurate figures on the composition of recyclate leaving the campus. Audits have indicated that most recycling bins do not suffer from unacceptable levels of contamination, but waste bins generally contain a high percentage (about 40%) of material that could be recycled. This information has been used to improve recycling systems within areas.

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	2005
Community awareness of biodiversity issues	<ul style="list-style-type: none"> • The development and distribution of postcards that emphasise the problems associated with cigarette butt disposal • Student planting days at Spring valley farm, as part of the ANU Greenfleet program • Clean up the Creek day as part of National Water Week • Clean Up Australia Day

Status of EMP Actions:

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

The Biodiversity program received the first of eight quarterly instalments from the National Heritage Trust to:

- compile the final report for Lower Sullivans Creek Catchment Ecological Survey
- compile an ecological resource kit to facilitate future urban ecological surveys
- develop landscape guidelines aimed at enhancing urban ecological resources
- develop a species database of urban wildlife that will provide an ecological web based reference for students, planners and community members.

It is anticipated that the final report, ecological resource kit and landscape guidelines will be completed and launched in October 2006 to coincide with Biodiversity Month. A member of the Australian Government Regional Natural Resource Management (NRM) Australian Capital Territory and Northern Territory Team recently reviewed the project with ACT NRM Facilitators and recommended submitting an additional proposal to the NRM board to seek funds to assist with the costs of the launch. A proposal will be formulated with CSIRO Discovery where it is proposed the launch be hosted.

10.2 Develop an ANU Biodiversity Plan that takes into account local and Commonwealth Government environmental protection regulations, relevant masterplans, the University's Landscape Plan, the Report on the Lower Sullivan's Creek Catchment Ecological Survey and the view of the ANU community and its neighbours.

Work has commenced on the Plan with some biodiversity principles established. Completion of the Plan is dependent on finalisation of the Lower Sullivans Creek Catchment

10.3 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).

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 a legislative requirement and has been submitted to the Department of Environment and Heritage and the Australian Heritage Council. Arising from the Strategy a number of other heritage-related documents have been developed that will guide heritage management at the ANU. These include an ANU Heritage Policy, Heritage Management Plan, and Heritage Management Manual.

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

Details of actions undertaken are contained in the Community Awareness section.

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)	2004	2005	% variation (2004/5)
TCO ₂ ^e total from fleet ⁽¹⁾	0(1100)	0(1041)	0(1022)	-1.82%
% of staff/students using alternative transport modes		44.9%		NA
Carpooling register participation and usage rates	N/A	111	170	+53%

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

The university continues to perform exceptionally well in the area of sustainable transport. The TCO₂^e produced by the university car fleet has decreased by 7% since 2002 and we expect to achieve our 2008 target of 10% below 2002 in the next year. The university continues to lead the ACT in the area of travel demand management and travel behaviour change. This leadership has been acknowledged with the university winning the 2005 ACT Health Promotion Awards for its work in encouraging cycling. However, there is still significant improvement that can be made in the area of fleet management. Studies conducted by ANUgreen indicate that the university car fleet is used quite inefficiently and that the car fleet size could be decreased if a centralized booking system was implemented. There are also opportunities to reduce the operational costs (and environmental impact) of the car fleet by changing the composition of the vehicle fleet (smaller cars, LPG fuel etc).

Status of EMP Actions:

11.1 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.

11.2 Ensure all fleet vehicles are optimally tuned to reduce fuel consumption and emissions

Responsibility of area fleet managers.

11.3 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:

Personalised transport marketing - During O-week ANUgreen provided personalised transport information to over 1000 students, providing students information on carpooling, buses, walking and cycling. The information was particularly targeted towards new students. ANUgreen also maintains a sustainable transport board in the University Union; as of April 2006 over 2500 bus timetables had been distributed to ANU staff and students. ANUgreen also discussed sustainable transport options with over 200 new international students during international orientation day. In February 2006 an ACTION bus with the new bike rack was invited on campus and over 100 students tried the new bike rack technology.

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 \$35 for one semester; in first semester 2006 51 students purchased this package.

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. Two more sheds at the Copland Precinct and the ANU Medical School will be completed in first semester 2006. A large undergraduate bike shed is now being planned for the Union Court area

"Timely Treadly" Departmental Bike Program - The Sustainability Office has launched a new and innovative departmental bike program that has a number of environmental, economic and health benefits. Through the "Timely Treadly" program thirty-two 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. This initiative has received widespread national media attention from WIN TV, The Australian, The Sydney Morning Herald and The Canberra Times.

11.4 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

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

This has yet to be undertaken

11.6 Undertake research into what influences transport choices

A comprehensive survey of the transport-related behaviour of the university community was undertaken in late 2003, a further survey will take place in first semester 2006.

11.7 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.

11.8 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.

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

See Community Awareness, section 12.

11.10 Maintain the Sustainable Transport Information Board in the Student Union Building

Ongoing task.

11.11 Develop an ANU Ride to Uni program

With over 450 members, the ANU Ride2Uni program is now one of the largest, if not the largest bicycle users 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

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

The ANU is also one of 3 corporate members' of Pedal Power. Recently Facilities and Services have also established a working relationship with ACTPLA on the implementation of the ACT Busway.

The ANU continues to work closely with ACTION buses on the promotion of bus catching by ANU students.

In recognition of our commitment to promoting active transport ANUgreen was awarded the ACT Healthpact Health Promotion Award for 2005

11.13 Investigate the feasibility and value of an ANU campus bus interchange

This issue has been canvassed with ACTION.

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

This was conducted in 2004 and will be carried out again in 2006.

11.15 Survey Transport modes of ANU Staff and students to inform alternative transport strategies and measure impacts.

Undertaken in conjunction with 11.14

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.

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 150 requests and questions through the email address anugreen@anu.edu.au and the feedback form on our website; and a further estimated 200 through 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: between 63000 and 66000 visits during 2004 (estimate based on ANUgreen proportion of Facilities and Services website visits, and doesn't count search engine indexing).
- Recognition of the ANUgreen name: as measured in a survey on ANU campus in mid-2004, more than 90% of staff and students recognise the ANUgreen name, and 60% of students and 80% of staff recognise it as a University program. This survey will be replicated again in second semester 2006.

Status of EMP actions:

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

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

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

Staff - In 2005 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, supplemented by advertising and publication in the first edition of *Woroni* and the student diary.

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.

12.2 Promote ANUgreen activities and operations in relevant University publications.

- Student diary advertising and transport information
- Staff diary advertising was taken out for the 2005 edition
- Numerous articles in "On Campus" relating to ANUgreen programs and events

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 Australian Campus Towards Sustainability national conference In September, 2005.

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

This was the focus of the staff diary advertising taken out for the 2005 edition.

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

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

Three newsletters were published in 2005, 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 450 subscribers.

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

Management of the GreenSteps environmental training program.

A number of student projects were undertaken for academic credit in conjunction with ANUgreen and students from SRES, Engineering, Commerce

For other environmental research projects ANUgreen employed students to undertake research and make recommendations, allowing students to apply their academic skills to real problems.

The Manager of the Sustainability Office has been working closely with the Dr Robert Dyball from the Human Ecology program, SRES in producing a number of publications that reference the work ANUgreen is undertaking and in particular the Education for Sustainability outcomes of ANUgreen work, these collaborations have produced two book chapters in international publications that will be published in 2006.

The Manager of the Sustainability Office has also been working closely with Professor Penny Oakes (PVC University Community) on the development of the Learning Communities initiative; this has led to the establishment of a Sustainability Learning Community, which brings together students from all disciplines with an interest in sustainability. These students can work on ANUgreen projects (with the permission of their course convenors), there are also a number of social and professional development activities undertaken as part of the Learning Community.

The Manager of the Sustainability Office gave a number of guest lectures to students from APSEG and SRES during 2005-6 on ANUgreen and corporate environmental management in general.

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

Guest lecture given to a CIT course by the Manager, ANUgreen.

One guest lecture at the Australian Campuses Towards Sustainability conference

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 Sustainability Office edited a publication entitled "Sustainability in the Australasian University Context" with Professor Walter Leal Filho from TuTech University, Hamburg that will be published by Peter Lang Academic Publishers, Frankfurt in May 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)

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

12.11 Continue the ANUgreen Environmental Achievement Awards

An award will be presented in April 2006 for action undertaken in 2005. The award winner will be announced in the ANU billboard, ANUgreen email list and through the *On Campus* newsletter.

The winner of the 2005 award is Mr John Ellison from the John Curtin School of Medical Research; John’s initiatives have conserved millions of litres of water at JCSMR.

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: from Healthpact award, GreenCorps program, Departmental bike program and Mobile Phone recycling initiative.
- 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.
- Participation in the ACT Healthpact Sustainability and Health Workgroup
- CIT guest lectures on the evolution of the ANUgreen program

- 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.
- Attendance at the United Nations Decade of Education for Sustainable Development National Strategy Workshop in Melbourne.
- Attendance at the Education for Sustainability workshop at Macquarie University
- The Manager of the Sustainability Office also met with Ms Jenny George MP and Ms Kelly Hoare MP as part of Science meets Parliament week, and promoted the importance of environmental management within the tertiary sector and the best practice initiatives of the ANU in this regard.

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	Variation
No. of areas within the University to have developed a local environmental management plan	1	1	0%

The ANU needs to improve in the area of local environmental management. This will be one of the major initiatives of ANUgreen in 2006. 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. This is currently being developed with the cooperation of Human Resources.

Status of EMP Actions:

13.1 Develop and implement a program to assist areas develop their own Environmental Management Systems.

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

Both these actions were deferred in 2005. But will be revisited in 2006.

13.3 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.

13.4 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

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