

UNSW



Environmental Management Plan 2005 – 2010

Volume 1: Framework

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*Approved: Environment Policy Advisory Committee
DVC (Resources)*

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1. UNSW Environmental Management Plan 2005-2010

The UNSW Environment Policy provides the framework for the development of this new five-year Environmental Management Plan (EMP). The plan will incorporate a rolling action plan with an annual cycle of review and budget allocation, which in turn provides the mechanism for implementation of the policy. The purpose of the Environmental Management Plan is to:

- Identify priorities;
- Set objectives and targets
- Define performance indicators;
- Document strategies and time frames to achieve targets;
- Allocate responsibilities and identify the necessary resources to enable realisation of the overall plan;
- Establish mechanisms to monitor, evaluate and report progress.

2. Background and context

The current UNSW Strategic Plan, which sets out the University's vision, values and priorities based on extensive consultation across the University community, was approved in November 2004. The University's vision is to be Australia's leading international research university with a reputation for excellence in scholarship, learning and the student experience. Complementing the University's commitment to scholarship, diversity and social justice is the belief that ***the principles of environmental sustainability should underpin and genuinely apply to all activities in which UNSW is involved.***

The UNSW Strategic Plan commits the University to continual improvement across four broad areas. The strategies and actions set out in this Environmental Management Plan will contribute to each of these areas in the following manner.

Research excellence

Develop, support and promote applied environment-related research directed at improved campus environmental management and design.

Teaching excellence

Develop, support and promote opportunities to achieve synergies between environmental learning and the campus learning environment.

International development

Develop and implement environmental initiatives on UNSW campuses in Australia and overseas, to promote the standing of UNSW as a leader in applied environmental management.

Community Service

Provide a model for the wider community through example, outreach and engagement.

The UNSW Strategic Plan also identifies the establishment and resourcing of the UNSW Environment Network ***to provide regional leadership in managing, researching and teaching environmental sustainability.*** Implementation of the Environmental Management Plan will involve, amongst other things, collaboration with the developing Environment Network.

UNSW was one of the first Australian universities to establish a high-level environmental advisory body, the Environment Policy Advisory Committee (EPAC), and to prepare a corporate Environment Policy, which was approved by University Council in February 1995. The Policy was revised and updated in 2000 and again in 2004. The current UNSW Environment Policy was approved by University Council on 20th June 2005.

The UNSW Environment Policy commits the University to achieve the following goals, in line with the Strategic Plan:

- Develop and promote a culture of environmental leadership, responsibility and continual improvement across the UNSW community;
- Audit, monitor and ensure compliance with the University's environmental legislative and regulatory obligations and other environmental commitments.;
- Utilise the resources of UNSW to lead the way in defining and achieving best environmental practice; and
- Advance and disseminate environmental knowledge and applied environmental management through teaching, research and engagement with the wider community.

This present document is the fourth Environmental Management Plan to be presented to EPAC since 1998.

3. Guiding Principles

Consistent with the UNSW Environment Policy and international management systems standards:

- This plan recognises that top management support (via authority and resourcing) is required to enable its successful implementation;
- The scope of the EMP addresses environmental aspects and impacts over which UNSW has direct control, and also those over which UNSW can exert influence as a consumer of goods and services, such as utilising the University's purchasing power to specify environmental requirements from suppliers and contractors;
- UNSW will ensure that the principles of life cycle costing are integral to the University's physical planning, design and development, asset acquisition and management, purchasing and operations.

It should be noted that strategies and actions are documented within the context of a five-year plan, but that the plan itself represents the first 5 years of a continual improvement cycle for UNSW. As such, continual improvement and capacity building are also guiding principles.

Further, a vigorous and targeted program of communication activities will be fundamental to recruiting support and facilitating involvement in delivery of key actions, in addition to promoting the University's position of leadership in the area.

4. Scope and priorities

The initial focus of the Environmental Management Plan is the Kensington campus of the University of New South Wales and those activities under the direct control of the University. Recognising the University's ownership and/or management of a range of other properties such as adjunct campuses and field stations where activities may give rise to significant environmental impacts, the EMP includes a number of priority strategies and actions relating to these locations. The EMP also supports collaboration and joint actions with affiliated organisations, tenants and contractors within the University's sphere of influence.

In line with the Environment Policy, the following criteria will be used to determine priorities for attention:

- Impact on the physical and biological environment;
- Contribution to innovation and definition of best environmental practice;
- Compliance with statutory requirements and other environmental commitments;
- Availability of resources.

The EMP acknowledges the social and cultural dimensions of responsible environmental management alongside the biological and physical, reflecting a holistic view of the University as a “human ecosystem”.

The scope of the EMP includes the following functional areas:

Management systems;

Those systems employed in the management of the university’s operational activities. Includes financial systems; engagement and supervision of contractors; purchasing policies, etc.

Knowledge systems;

Those processes which build knowledge and capacity on environmental issues, principles and sustainable behaviours. Includes training; communications; campaigns; links with Faculties and Centres, etc.

Energy management;

The energy-related aspects of the planning, design, construction, operation and maintenance of the University’s facilities.

Water management;

Aspects of supply, usage and disposal of water pertinent to the planning, design, construction, operation and maintenance of the University’s facilities.

Materials management;

Those services and activities which support the avoidance, resource recovery (e.g. reuse and recycling) and environmentally responsible disposal of solid and liquid waste materials.

Planning, design and development;

The planning, design and development of the University’s built form and associated infrastructure.

Pollution prevention;

Those aspects of planning and management which support minimisation of air and water pollution and contamination of land resulting from UNSW activities.

Transport;

Programs, projects, systems and procedures which promote and support walking, cycling and public transport for trip-to-work and other University-related travel.

Biodiversity and open space;

Those aspects of management and maintenance which support conservation and enhancement of biodiversity and environmentally sustainable use of open space across UNSW campuses and other properties.

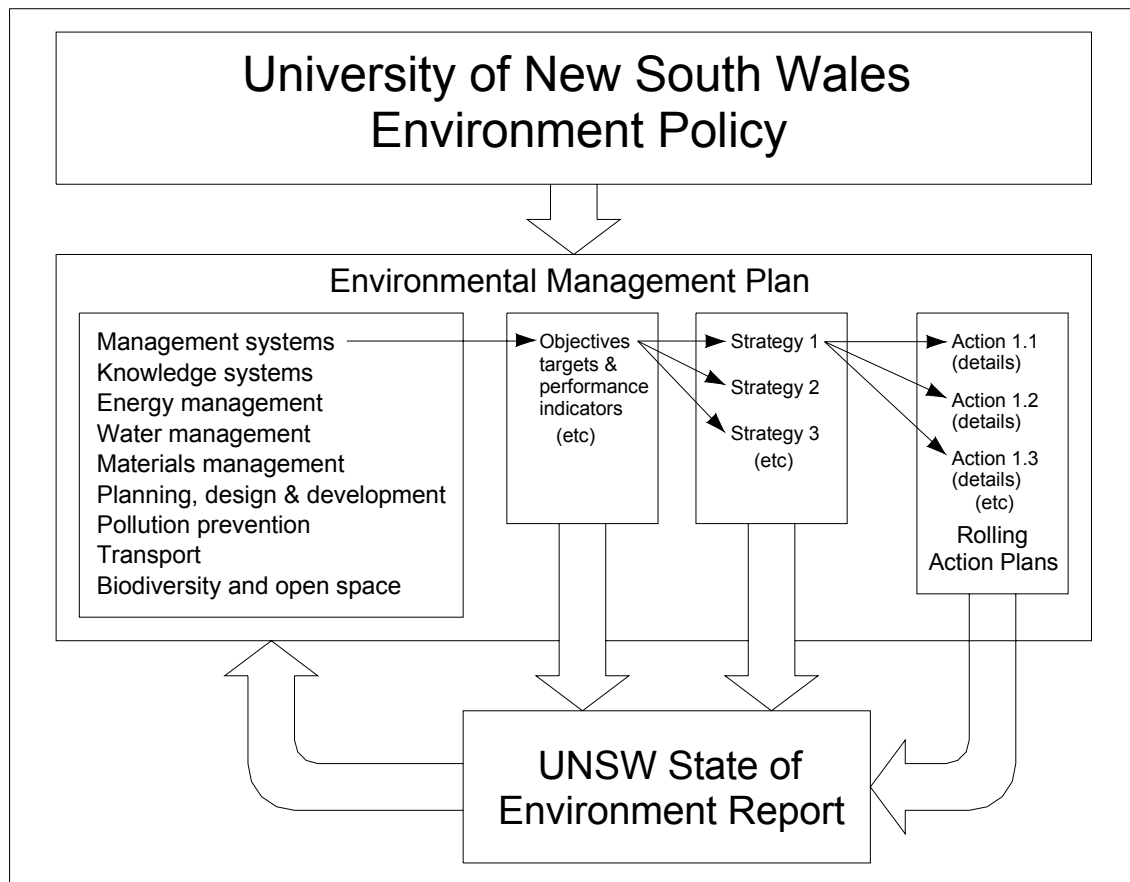
Identification and prioritisation of environmental risk will be based on the Australian and New Zealand Risk Management Standard AS/NZS4360:2004 and Guidelines HB436:2004, using qualitative likelihood vs. consequence methods.

5. Structure of the Plan

To facilitate implementation, the Environmental Management Plan is divided into *nine functional areas*, under each of the headings identified above. At the same time it is recognised these areas are interconnected and adverse or beneficial environmental impacts in one area will affect others.

To facilitate efficient and effective environmental management, *objectives and targets* are set out for each section, together with *environmental performance indicators* to monitor the University’s progress towards achieving its targets.

Each section includes a set of specific *strategies*, which provide the basis for the development of the rolling *action plans*, which represent the means for practical implementation of the EMP. The process is outlined in the diagram below. The action plans will incorporate annual communication plans to publicise and promote the university’s environmental initiatives across UNSW and externally.



6. *Timeline*

The Plan will be implemented according to the following timeline:

Year of Plan	Date	Action
Year 0	May 2005	EMP finalised and approved by EPAC, including rolling action plan
Year 0	June 2005	Funding for year 1 of action plan embedded in Resources Division consolidated budget for 2006; development of projects for rollout in Year 1, and implementation of existing projects
Year 0	October 2005	Submissions for capital works budget prepared by end of October
Year 1	Jan. – Dec. 2006	Implementation of funded projects as per action plan
Year 1	June 2006	Funding for year 2 of action plan embedded in Resources Division consolidated budget (finalised beginning June)
Year 1	October 2006	Strategies and action plans reviewed, updated and approved by EPAC by end of October
Year 1	October 2006	Submissions for capital works budget prepared by end of October
Year 2	Jan. – Dec. 2007	Continued implementation of funded projects as per action plan
Year 2	Feb 2007	UNSW environment report prepared and published by end of February
Year 2	June 2007	Funding for year 3 of action plan embedded in DVC (R) consolidated budget (finalised beginning June)
Year 2	October 2007	Strategies and action plans reviewed, updated and approved by EPAC by end of October
Year 2	October 2007	Submissions for capital works budget prepared by end of October
Year 3 (etc)	Jan – Dec 2008	Delivery / review / planning / funding cycle continued as per above model

7. *Environmental objectives, targets and performance indicators*

Environmental performance measurement provides:

- Feedback on the effectiveness of actions taken to reduce the University's ecological footprint;
- A basis for reviewing environmental objectives and targets;
- A structure for the annual UNSW State of the Environment Report;
- A framework for achieving continual improvement.

Environmental performance indicators must be SMART: specific, measurable, attainable, relevant and time-framed. Consistent with the international Environmental Performance Evaluation Standard ISO14031, the environmental indicators used to track progress in implementing this Plan include **management performance indicators** relating to organisational practices and procedures, and **operational performance indicators** to track the significant environmental effects of the University's activities.

The UNSW Institutional Analysis and Reporting Office collects a range of student, staff, financial and resource-based statistical information for internal planning and external reporting to the Department of Education, Science and Training. This information is used here to relate the University's **environmental impacts** (e.g. greenhouse emissions from energy consumption) to its **activities** (e.g. teaching students), thereby providing meaningful indicators of environmental performance (e.g. tonnes of carbon dioxide per equivalent full-time student).

The EMP sets objectives and targets for each of the nine functional areas. The international Environmental Management Systems Standard ISO14001:2004 defines an **environmental objective** as an "overall environmental goal, consistent with the environmental policy that an organization sets itself to achieve". Objectives should be quantifiable wherever possible. An **Environmental target** is defined in ISO14001 as a "detailed performance requirement[s], applicable to the organization or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives". For convenience, objectives and targets are included under the one heading in the table below.

Functional area	Performance indicators	Objectives and targets
Management systems	<p>Proportion of plant and equipment purchased compliant with environmentally preferred selection criteria</p> <p>Proportion of UNSW suppliers and contractors with, or working towards, a recognised environmental management system (EMS)</p> <p>Total CO₂ equivalent emissions from energy consumption, waste production and operation of vehicle fleet, per EFTSU per annum (composite measure required for Greenhouse Challenge reporting)</p> <p>Ecological footprint resulting from the university's activities, hectares per (EFTSU + FTE)</p> <p>Savings resulting from environmental initiatives (identified through application of life-cycle costing)</p>	<p>S1. Achieve University Council endorsement for an environmentally preferred purchasing policy by 2007</p> <p>S2. Incorporate lifecycle costing and triple bottom line criteria in University accounting and budgeting procedures by 2008</p> <p>S3. Manage supply chain so that by 2010, 60% of UNSW preferred providers comprise organisations which have, or are working towards, a recognised EMS</p> <p>S4. Provide environmental leadership through development of "cutting edge" environmental reporting</p> <p>S5. Continually improve integration of environmental criteria into UNSW management systems and processes</p>
Knowledge systems	<p>Measured awareness of campus environmental management issues</p> <p>Proportion of full-time equivalent staff (FTE) having received environment-related training</p> <p>Number of students (EFTSU) who have completed campus-focused environmental projects per annum (p.a.)</p> <p>Number of visitors to environment@unsw website p.a.</p> <p>Proportion of EFTSU and FTE participating in environment-related campaigns (e.g. Spot It Stop It, unswitch) p.a.</p>	<p>K1. Achieve 90% staff and 70% student awareness of UNSW Environment Policy and "environment@UNSW" portal by 2010</p> <p>K2. Achieve broad recognition of UNSW as an environmental leader in teaching, research and applied environmental management by 2010</p> <p>K3. Deliver environmental training programs to 5% of full-time equivalent staff p.a.</p> <p>K4. Maximise the integration of the Environmental Management Plan with teaching and research programs to achieve the plan's objectives</p> <p>K5. Ensure induction of all new staff includes information on Environment Policy and associated programs</p> <p>K6. Build capacity amongst UNSW community to identify issues, propose solutions and take action</p>

Functional area	Performance indicators	Objectives and targets
Energy management	<p>Electricity consumption, kilowatt hours per EFTSU p.a.</p> <p>Natural gas consumption, megajoules per EFTSU p.a.</p> <p>Total energy consumption, gigajoules per square metre gross floor area</p> <p>Electricity consumption, kilowatt hours per square metre gross floor area per cooling degree day p.a.</p> <p>CO₂ emissions from electricity and natural gas consumption per EFTSU p.a.</p> <p>Total energy costs, dollars per EFTSU p.a.</p> <p>Proportion of UNSW energy consumption derived from renewable sources</p> <p>Rate of replacement of existing equipment and fixtures with 4 star energy rated alternatives.</p>	<p>E1. UNSW aspires to aggressively conserve energy, progressively rely on renewable energy and reduce net greenhouse gas emissions to zero¹</p> <p>E2. Reduce greenhouse gas emissions resulting from electricity and natural gas consumption per EFTSU by 2% p.a. through design, demand management and improved efficiencies</p> <p>E3. Remotely monitor and manage at least 60% of the University's total electricity and natural gas loads by 2010</p> <p>E4. By 2010, meet 7.5% of the University's electrical maximum demand from renewable sources and ensure a further 40% of energy requirements are generated with equipment supplied by natural gas</p> <p>E5. Continually improve the reliability and efficiency of the energy-related infrastructure without exceeding the 2005 Kensington campus electrical capacity</p> <p>E6. Obtain sufficient annual funding to meet the cost of energy supply and to achieve the energy objectives of the Environmental Management Plan</p> <p>E7. Ensure that all new energy-related equipment and fixtures are minimum 4 star rated</p>

¹ This is an overall “stretch goal” set by the UNSW Energy Strategy 2005, not a 2010 target.

Functional area	Performance indicators	Objectives and targets
Water management	<p>Potable water consumption, kilolitres per EFTSU p.a.</p> <p>Bore water consumption, megalitres p.a. (Kensington campus)</p> <p>Bore water consumption as a proportion of total water consumption</p> <p>Stormwater returned to aquifer via Village Green aquifer recharge project as proportion of annual incident rainfall (Kensington campus)</p> <p>Useful catchment area (pervious surfaces plus catchment discharging to aquifer recharge) as proportion of total area of Kensington campus</p> <p>4 star rated equipment and fixtures as proportion of total</p>	<p>W1. Reduce annual potable water consumption by 3% per EFTSU p.a.</p> <p>W2. Provide 75% of all non-potable water needs for Kensington campus from the University's bore water supply by 2010</p> <p>W3. Maximise on-site retention of stormwater from Kensington campus via natural infiltration and aquifer recharge</p> <p>W4. Increase useful catchment area by 5% by 2010</p> <p>W5. Ensure all new water-related equipment and fixtures are minimum 4 star efficiency rated</p>
Materials management	<p>Municipal solid waste to landfill, tonnes per EFTSU p.a.</p> <p>Construction & demolition (C&D) waste recovered as proportion of total C&D waste p.a.</p> <p>Commercial & industrial (C&I) waste recovered as proportion of total C&I waste p.a.</p> <p>Domestic sector waste recovered as proportion of total domestic waste p.a.</p> <p>Organics waste recovered as proportion of total organics waste p.a.</p> <p>Paper: tonnes purchased per annum</p> <p>Paper: tonnes recycled per annum</p> <p>Recycled paper as proportion of all printer/copier paper purchased by UNSW p.a.</p> <p>Total cost of waste disposal, dollars per EFTSU p.a.</p>	<p>M1. Achieve continuous reduction in solid waste to landfill/thermal treatment per FTE/EFTSU p.a.</p> <p>M2. Achieve continuous increase in proportion of solid waste stream recovered for high resource value use p.a. Target:</p> <ul style="list-style-type: none"> • Construction & demolition (C&D) sector target 76% by 2010 (refer planning, design, development) • Commercial & industrial (C&I) sector target 63% by 2010 • Domestic sector (including colleges) target 66% by 2010 • Organics target 66% by 2010 <p>M3. Ensure that at least 75% of all printer/copier paper purchased by UNSW is manufactured from 100% post-consumer fibre by 2010</p>

Functional area	Performance indicators	Objectives and targets
Planning, design and development	<p>Buildings rated as four star, five star or better under the Green Star ESD rating system as proportion of University's total gross floor area</p> <p>Proportion of recommendations adopted from post-occupancy evaluations of new buildings and major refurbishments</p> <p>Proportion of non-conformances from construction site audits closed out to satisfaction of UNSW</p> <p>Material reused/recycled from campus construction projects as proportion of total construction/demolition waste</p> <p>Area of accessible "green space", square metres per EFTSU</p> <p>Measure of how easily people can find their way around campus</p> <p>Qualitative measure of thermal comfort and daylight amenity for offices and teaching spaces</p>	<p>D1. Design and construct all new buildings and major refurbishments to achieve five star or better under the Green Star rating scheme</p> <p>D2. Achieve benchmark level of occupant satisfaction with respect to UNSW offices and teaching spaces by 2010</p> <p>D3. Achieve benchmark level of user satisfaction with UNSW campus open space by 2010</p> <p>D4. Divert a minimum of 76% of C&D waste from campus construction projects from landfill from 2005</p> <p>D5. Achieve construction site compliance with regulatory, development consent and UNSW requirements from 2005</p> <p>D6. Increase amount of accessible green space per EFTSU by 5% by 2010</p> <p>D7. Ensure compliance with requirements of heritage and environment-related planning legislation by 2006</p>
Compliance and pollution prevention	<p>Compliance with legal/regulatory requirements</p> <p>UNSW facilities/organisations having undergone an environmental audit as a proportion of University's total gross floor area</p> <p>Proportion of laboratories having undergone an environmental audit</p> <p>Trade waste discharge to sewer, kilolitres p.a.</p> <p>Generation of biological and chemical (hazardous) waste, tonnes per FTE p.a.</p>	<p>P1. Achieve full compliance with all environmental legislative and regulatory requirements by 2010</p> <p>P2. Conduct environment audit, and establish and monitor Environment Improvement Programs for 50% of UNSW laboratories by 2010</p> <p>P3. Achieve continual reduction in quantity and toxicity of biological, hazardous and liquid trade waste generated</p>

Functional area	Performance indicators	Objectives and targets
Transport	<p>CO₂ equivalent emissions from UNSW vehicle fleet, tonnes per km travelled p.a.</p> <p>CO₂ equivalent emissions from University-related air travel, tonnes per FTE p.a.</p> <p>Car park spaces, number per FTE</p> <p>Surveyed percentage of staff and students travelling to work/study by foot, bicycle and/or public transport</p> <p>Measure of student and staff satisfaction with public transport experience</p>	<p>T1. Achieve 100% offset of CO₂ equivalent emissions from the UNSW vehicle fleet (including both Faculty and operational vehicles) by 2007</p> <p>T2. Achieve 100% offset of CO₂ equivalent emissions from University-related air travel by 2010</p> <p>T3. Reduce average emissions of vehicle fleet by 40% by 2010</p> <p>T4. Achieve 3% p.a. increase in the proportion of UNSW staff and students travelling to work/study by foot, bicycle and/or public transport</p>
Biodiversity and open space	<p>Percentage green space at Kensington campus</p> <p>Locally indigenous plants propagated from locally provenanced seed planted on Kensington campus as proportion of total plantings</p> <p>Pesticide, herbicide and fertiliser use on land under UNSW control, kilograms per hectare p.a.</p> <p>Number of locally indigenous species of flora and fauna present identified for all land under UNSW control</p> <p>Area of land for which biodiversity management and/or recovery plans have been prepared, as proportion of all land under UNSW control</p>	<p>B1. Achieve continual improvement of ecological functionality and habitat potential for native fauna on land under UNSW control</p> <p>B2. Ensure 50% of plantings of indigenous species at Kensington campus are propagated from locally provenanced seed</p> <p>B3. Reduce chemical use on land under UNSW control by 5% p.a.</p> <p>B4. Complete assessment of biodiversity values of sites under UNSW management by 2008</p> <p>B5. Complete management/recovery plans for sites with significant biodiversity values by 2010</p> <p>B6. Increase awareness and knowledge of ecology and functionality of plantings on campus</p>

8. *Strategies and 2005-6 Action Plan*

A series of strategies and actions to achieve the objectives and targets of the EMP are attached as a companion document (Volume 2), together with completion dates for specific projects and the allocation of responsibilities and funding resources necessary to ensure implementation.

9. *Resourcing model*

In initiating the 2005 review of the UNSW Environment Policy, and the development of the 2005-10 Environment Management Plan (EMP), the DVC (Resources) directed that sustainable funding mechanisms be formalised to enable implementation. The UNSW Senior Management Group has approved the funding of a dedicated Environment Operations Budget to resource the implementation of the EMP, derived from the following sources:

- 0.5% of the total annual combined Building and Grounds Charge and CATS Charge;
- 5% of the total annual parking and parking fines revenue; and
- \$150,000 annually from the Energy Strategy Fund.

This Environment Operations Budget is to be expended exclusively for prosecution of the UNSW Environment Policy through implementation of the Environmental Management Plan. It comprises operational and program/project funding as defined in the annual Action Plan (exclusive of capital works), including maintenance of salaries for core Environment Unit positions and overheads to enable the above. Budget responsibility and authority, within the appropriate financial delegation, sits with the Environment Unit Manager.

10. *Reference documents*

This plan has been developed in direct consultation with key stakeholders, and with the broader UNSW via a series of advertised workshop forums. This plan is directly informed by the following documents:

1. UNSW Strategic Plan 2005
2. UNSW Environment Policy 2005
3. Kensington Campus 2020 Master Plan (draft)
4. UNSW Energy Strategy 2005
5. NSW Environmental Education Plan 2001-2005
6. Introduction to the Environment Network 2005. Internet publication: <http://www.ies.unsw.edu.au/research/EN.htm>