IARU CAMPUS SUSTAINABILITY: A How-To Guide

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A Supplement to the Campus Sustainability Toolkit

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IARU Campus Sustainability: A How-To Guide

A SUPPLEMENT TO THE CAMPUS SUSTAINABILITY TOOLKIT

This document was designed for use in conjunction with the campus sustainability toolkit. The goal was to develop a guide to implementing sustainable practices on campus that would be useful to a range of types of universities at various stages of planning. With this in mind, the guide can be used in its entirety or the sections can be used individually. Each of the sections below elaborates on the matching step of the toolkit and provides links to case studies and planning worksheets where possible.

Although examples are given for each step below, the following resources cover multiple steps and are thus some of the most helpful for getting an idea of the overall process and for providing an overview of how other universities have tackled environmental sustainability.

IARU Resources:

ANU Environmental Management Plan 2009-2015
Cambridge Sustainability and the University
Cambridge Environmental Plan
Copenhagen Climate Strategy 2010
ETH Zurich Environmental Report 2008
ETH Zurich Annual Report – see "Social Commitment – Environment"
Tokyo Sustainable Campus Project
UC Berkeley Campus Sustainability Plan 2009
UC Berkeley Campus Sustainability Report 2009
UC Berkeley Climate Action Plan 2009
Yale GHG Commitment – Developing the Climate Action Plan
Yale Greenhouse Gas Reduction Strategy

Other Resources:

AASHE Homepage
AASHE Accelerating Campus Climate Initiatives
AASHE Cool Campus – A How-To Guide for College and University Climate Action Planning
American College & University President's Climate Commitment Homepage

1. MAPPING CURRENT SITUATION AND DEVELOPING A GOVERNANCE STRUCTURE

The first step towards implementing sustainable practices on campus is to establish a solid management structure from which to operate. This structure may essentially already be in place, or may need to be created anew. Ultimately it should cover as many sectors of campus operations as possible. Obtaining funding for the various operations of this body is also essential.

➢ Assess the current operational structure of the university - where does environmental management fit in and/or where has it already been established?

- Assess the current environmental and sustainability-specific **resources, actions, programs and policies** in place
- Research any sustainability programs at the **local, regional, and national** levels
- Investigate any **community or student efforts** taking place

Resources:
Cambridge Other Sources of Information
Cambridge Climate Change Charter
UC Berkeley Related Sustainability Programs
Yale Office of Sustainability Partners

➢ If not in place already, establish an appropriate governance structure, taking the following levels into consideration:

- **Executive Management:** Whose approval is needed for environmental management activities (e.g. the Vice Chancellor)?
- **Environmental Management:** Who will be in control? Should it be centralized or distributed? Where are the nodes of authority?
- **Departments/Offices/Groups:** Who else will be involved – who needs to work together, and whose support is required?
- **Key Staff:** Who are the key staff working on this and what are their roles (can be multiple)? What roles can be filled by training existing staff members?
- **Others:** Is the proposed structure representative of the campus community and its place within the larger community? Are there other opportunities to integrate collaboration with others into the structure of university environmental management? (for further information, see Step 2)

Resources:
Cambridge Department Environmental Coordinators
ETH Zurich Sustainability Organization

Yale Office of Sustainability "About Us"

➢ Begin to establish a budget and financial plan

- Determine the existing budget for all current sustainability operations. Can this money be pooled and coordinated?
- Estimate how much money will be needed to implement and run planned sustainability operations on campus
- Determine where this money will come from – the university's budget, department budgets, etc.
  - Assess how much funding can be readily obtained, and brainstorm ways of obtaining the remaining amount needed. Some suggestions include:
    - Set up a direct donation program for specific projects
    - Organize fundraisers for specific projects
    - Apply for government-funded grants for appropriate projects
    - Consider establishing a green loan or grant program to encourage others on campus to start their own sustainability initiatives

Resources:
ANU Green Loan Fund
UC Berkeley Cal Green Fund Grants
UC Berkeley Giving Green
AASHE Guide to Creating a Campus Sustainability Revolving Loan Fund
AASHE Raise the Funds Campus Action Toolkit

Other resources:
Academic Paper on Mainstreaming Environmental Management: Case Studies from Australasian Universities

2. INTEGRATING SUSTAINABILITY

While mainstreaming environmental management into campus operations (outlined above) is a key first step, environmental sustainability can only be achieved when everyone is involved. This means integrating sustainable practices into all campus sectors and activities; campus operations must be tied into the fabric of, and supported by, the campus community, including general staff, researchers and students.

➢ Identify actions that the university can take to better integrate sustainability into all campus activities in the following subcategories (and consider areas of overlap):

General staff

- Mainstream environmental management into contracts and build a relationship with contract staff
- Allow operational staff to share their expertise through participation in teaching activities

Resources:
Cambridge Environmental Training
UC Berkeley Faculty/Staff Guide

Academic research and education

- Identify sustainability-related research taking place, and work towards applying the results on campus and/or collaborating with researchers to tailor the research to campus needs
- Develop and fund new research projects tailored to campus sustainability needs
- Create sustainability-related course options and academic programs

Resources:
Academic Paper - Integrated Sustainability Education
ANU Climate Change Institute
Cambridge Environmental Initiatives (CEI) Network
Copenhagen Climate Research
Copenhagen Research Congress on Climate Change 2009
ETH Zurich Seed Sustainability Student Sustainability Research
ETH Zurich Sustainability Research
ETH Zurich Sustainability Teaching
NUS Environmental Education
UC Berkeley Energy and Resources Group
UC Berkeley Sustainability Learn and Academics Overview

Student activities (for further information, see Step 6)

- Support specific student-led sustainability-related organizations, programs and other endeavours
- Establish fellowships/internships
- Provide incentive by acknowledging success and contribution through awards, public recognition

Resouces:

Cambridge CUSU Ethical Affairs
Cambridge Environmental Consulting Society
Copenhagen Green Relay Competition
NUS Environmental Awards
Oxford OUSU Environment and Ethics Committee
UC Berkeley Student Food Collective
UC Berkeley Student Guide
Yale Office of Sustainability Employment Opportunities

Other Resources:

ANU Outreach and Education for Sustainability
Copenhagen Engagement and Collaboration
ETH Zurich Ecoworks Platform for Energy and Environmental Projects
UC Berkeley Building Sustainability at Cal
UC Berkeley CalCAP
Yale Office of Sustainability Get Involved
Yale Office of Sustainability Campus as a Living Lab

3. MEASURING ENVIRONMENTAL IMPACTS

Once you have an environmental management structure in place and have begun to integrate this structure with as many campus sectors and activities as possible, the next step is to begin working towards the creation of an environmental management plan (EMP). This can be done in several smaller steps, each of which will most likely require a substantial period of time for development, implementation and review (but can be carried out concurrently where appropriate). The first of these steps is to take baseline measurements of several key indicators of the university's environmental performance.

- **Determine what will be measured. Identify enduring quantitative indicators that give insights about the university's environmental impact, including both ecological and social elements. The categories and indicators below are examples only – choose only those that are best suited to your university and use additional categories/indicators where appropriate.**

Community

- Outreach: Contact, Commitments
- Training: Professional Development, Products
- Events: Participation
- Projects: Project Time, Audits

Infrastructure

- Buildings: Green Building Rating, Green Loans
- Sustainable Landscapes: Watering, Carbon Sequestration, Native vs. Foreign Species
- Sustainable Transport: Green Commuting, Bicycle Parking, Air Travel and Offsets, Vehicle Emissions and Offsets

Natural Resources

- Energy use: GHG Emissions, Electricity, Gas, Green Energy
- Water use: Potable Water
- Procurement and Waste: Waste Reduction, Recycling and Re-use, Waste to Landfill, Total Purchases and % Green Purchases

Resources:
ANU Article - Standardizing Greenhouse Calculators
IARU Emissions Baseline Data Collection Form
NUS Developing a GHG Inventory
UC Berkeley 2008 Student Housing and Transportation Survey

➢ Establish how the measurements will be made, when and by whom

It may be most cost effective to use existing systems and work out how to maximize the benefits

- e.g. use electricity/water/gas bills and embed electronic billing in contracts
- e.g. train existing staff to collect data and embed this duty in contracts

Look for opportunities to streamline and/or standardize measurements to aid in later analysis

SEE APPENDIX A. Environmental Impact Measurement Worksheet

➢ Once the university's environmental footprint has been quantitatively assessed, analyse the data

Determine the best quantitative units, organizational scheme and presentation format for analysis keeping the following in mind:

- Ease of use
- Relevance/effectiveness for spurring change
- Long term consistency
- Variables' ability to separate "noise" from the "signal" in a meaningful way - e.g. change over time, by population, floor area, research funding

Put the data analysis together in a report, keeping the following in mind:

- Who is the main audience of the report and what is the best format for the presentation of data to this audience?
- Will this format be useable in years to come? How can it be modified to be more flexible?

Resources:
Copenhagen Green Accounts Summary 2008
Copenhagen Green Results and Indicators
Tokyo Sustainable Campus Project – Statistical Data

Other Resources:
UC Berkeley CalCAP Feasibility Study
UC Berkeley Sustainability Climate and Energy Overview
UC Berkeley Sustainability Waste Overview

Yale GHG Emissions Inventory 2009

4. DEVELOPING POLICIES, GOALS AND TARGETS

Once baseline values have been established for each indicator, they can be used to identify the key areas for improvement. This information should be reflected in a policy or vision, outlining the university's commitment to environmental improvement. This document sets the stage for the next step in creating an Environmental Management Plan (EMP), the development of goals and targets for the most crucial areas of environmental management on campus.

➢ Develop an underlying policy or vision that states the University's dedication to environmental sustainability. No single format is necessarily better than the rest—the statement should be tailored to the particulars of the university, e.g. what stage of sustainability planning has been reached.

Broad vs. Specific:

- Broad - "Take reasonable steps towards best practice environmental management"
- Specific – would cover the key areas identified by the initial measurements, such as energy, water, and waste

For different stages of sustainability planning:

- Early – "Understand environmental impacts and possibilities"
- Mid – "Mainstream environmental management"
- Mature – "International leadership"

Resources:
ANU Environmental Policy
Cambridge Policy on Environmental Issues
ETH Zurich Vision and Mission
NUS Office of Environmental Sustainability Mission and Vision
NUS Environmental Policy
Oxford Environmental Sustainability Policy 2008
UC Policy on Sustainability Practices
UC Berkeley Statement of Campus Commitment to the Environment
Yale Sustainability Vision

➢ Develop goals (short term) and targets (long term) for the performance indicators chosen in Step 3. They should be quantitatively measurable, in order for progress to be assessed.

You may wish to choose a more limited number of items to develop goals for. The following considerations and tools may be useful when prioritizing:

- Which areas are the most critical in terms of environmental impact?
- Which areas are the most critical in terms of money spent and potential savings?

- Which areas have the best benefit vs. time ratio?
- Which items have the greatest level of current public attention?

In developing goals, the following sources can be taken into account:

- Baseline data established in preceding step and historical data
- Reasonable achievements made possible by existing technology
- Goals of other universities
- National and international requirements/laws/etc.
- Financial, manpower, and organizational limitations

Resources:
Copenhagen Energy and Climate
Copenhagen Green Campus Goals
ETH Zurich Sustainability Focus 2009
UC Berkeley Bright Green Sustainability Goals
Yale Sustainability at Yale
Yale Sustainability Goals
Yale Article – Zeroing in on Sustainability

5. ESTABLISHING STRATEGIES TO CREATE A SUSTAINABLE CAMPUS

Once goals and targets have been established for crucial areas of environmental management on campus, an Environmental Management Plan (EMP) can be completed with the elaboration of a set of strategies for achieving each goal. This step focuses on the formulation of strategies for Infrastructure and Resource goals, while Step 6 below pertains mainly to creating strategies for Social goals.

- **Eliminate activities/infrastructure that are having an adverse effect on the campus's ecological footprint**

  Consider opportunities for integrating systems as a way of streamlining processes, thereby reducing strain on resources and eliminating redundancy

  Create policies abolishing unnecessary activities and preventing the use of out-dated infrastructure with high environmental impacts

- **Establish appropriate new standards for activities/infrastructure affecting campus environmental impact that will not or cannot be otherwise eliminated or replaced**

- **Create new lower-impact activities/infrastructure where necessary or beneficial.**

- **Identify issues blocking meaningful changes and work to solve them**

Resources:

Buildings -
ANU Comparison of International ESD Building Rating Schemes in IARU Countries
ANU Ian Ross Building
Cambridge Design and Construction of Environmentally Sustainable Buildings
Cambridge Centre for Mathematical Studies
Copenhagen Green Lighthouse
The Energy Consortium Project Manager's Guide to Energy and Water Efficiency Measures for University Buildings
Labs for the 21st Century Toolkit
Whole Building Design Guide – Sustainable Laboratory Design

Procurement & Waste -
ANU HotRot Organics Recycling Project
Oxford EcoFinance and Swap Shop
UC Berkeley Cal Dining Environment
AASHE Guide to Developing a Sustainable Food Purchasing Policy

Travel -
Oxford Sustainable Travel Schemes

All -

Cambridge Guidance Documents
Copenhagen Green Campus Homepage
Copenhagen Green Campus Action Plan 2009
ETH Zurich Science City Campus Sustainability
NUS Sustainability Strategy Overview
Oxford Environmental Sustainability Homepage
UC Berkeley Sustainability Homepage
Yale GHG Reduction Measures
APPA's Practical Guide to Reducing the Campus Carbon Footprint

6. EDUCATION AND AWARENESS

A crucial part of reaching sustainability targets is formulating strategies to achieve Community goals, so that everyone on campus is contributing to the endeavour with sustainable practices. It may be helpful to reference Step 2, as there may be considerable overlap with your ideas for integrating sustainability into the campus community. This is the last step for creating an Environmental Management Plan (EMP).

- **Improve awareness of environmental issues and education about changes that can be made, thus improving participation of campus population in environmental sustainability. Following are some examples of actions that can be taken:**

  Establish annual reporting to encourage accountability and transparency

  Distribute information about energy use, water consumption, waste reduction, etc.

  Advertise sustainability initiatives on campus

  Set up direct access to hardcopy and electronic resources - posters, websites, published papers, email newsletters

  Help to organize community and campus activities and events

  Include sustainability briefings in induction programs

  Arrange formal education programs for staff

Resources:
ANU SEE Sustainability @ Work
ANU Outreach and Education for Sustainability
ANU Environment Newsletter
Cambridge Greenlines
Copenhagen Climate Lectures
Copenhagen Green Action
Copenhagen Film - Introduction to University Climate Effort
ETH Zurich Implementing Sustainability in Conferences
ETH Zurich Sustainability Current Events
NUS Greentips
NUS Take Action!
NUS Office of Environmental Sustainability - Resources
Oxford Eco Reps
Oxford Information for Departmental Administrators
Oxford Energy Saving Carbon Trust Posters
Oxford Environmental Sustainability FAQ's
Oxford Environmental Sustainability Facts and Figures
Oxford Waste A-Z

Oxford Water Saving at Work
UC Berkeley Faculty/Staff Guide
UC Berkeley Student Guide
UC Berkeley Sustainability Forums
UC Berkeley Talking Louder About Sustainability
UC Berkeley Sustainability Newsletter
UC Berkeley Environmental News
Yale Sustainability Pledge
Yale Office of Sustainability Certifications We Offer
Yale Office of Sustainability News and Events
Yale Office of Sustainability Publications and Resources

ANNEX A. ENVIRONMENTAL IMPACT MEASUREMENT WORKSHEET

Category	Item	Indicator	Measurement – How	Measurement – Who	Measurement – When	Additional Comments
Community	Outreach	Contact				
		Commitments				
	Training	Prof. Development				
		Products				
	Events	Participation				
	Projects	Project Time				
		Audits				
Infrastructure	Buildings	Green Building Rating				
		Green Loans				
	Sustainable Landscapes	Watering				
		Carbon Sequestration				
		Native vs. Foreign Species				
	Sustainable Transport	Green Commuting				

Category	Item	Indicator	Measurement – How	Measurement – Who	Measurement – When	Additional Comments
		Bicycle Parking				
		Air Travel & Offsets				
		Vehicle Emissions & Offsets				
Resources	Energy Use	GHG Emissions				
		Electricity				
		Gas				
		Green Energy				
	Water Use	Potable Water				
	Procurement and Waste	Waste Reduction				
		Recycling				
		Re-use				
		Landfill				
		Total Purchases & Green Purchases				
Other	Other	Other				
		Other				
	Other	Other				

ANNEX B. RESOURCES BY IARU UNIVERSITY

Australian National University
ANU Article - Standardizing Greenhouse Calculators
ANU Comparison of International ESD Building Rating Schemes in IARU Countries
ANU Environment Newsletter
ANU Environmental Management Plan 2009-2015
ANU Environmental Management Report 2007-2008
ANU Environmental Policy
ANU Green Loan Fund
ANU HotRot Organics Recycling Project
ANU Ian Ross Building
ANU Outreach and Education for Sustainability
ANU SEE Sustainability @ Work

University of Cambridge
Cambridge Centre for Mathematical Studies
Cambridge Climate Change Charter
Cambridge CUSU Ethical Affairs
Cambridge Department Environmental Coordinators
Cambridge Design and Construction of Environmentally Sustainable Buildings
Cambridge Environmental Consulting Society
Cambridge Environmental Initiatives (CEI) Network
Cambridge Environmental Plan
Cambridge Environmental Training
Cambridge Greenlines
Cambridge Guidance Documents
Cambridge Other Sources of Information
Cambridge Policy on Environmental Issues
Cambridge Sustainability and the University

University of Copenhagen
Copenhagen Climate Lectures
Copenhagen Climate Research
Copenhagen Climate Strategy 2010
Copenhagen Energy and Climate
Copenhagen Engagement and Collaboration
Copenhagen Film - Introduction to University Climate Effort
Copenhagen Green Accounts Summary 2008
Copenhagen Green Action
Copenhagen Green Campus Action Plan 2009
Copenhagen Green Campus Goals
Copenhagen Green Campus Homepage
Copenhagen Green Lighthouse
Copenhagen Green Relay Competition
Copenhagen Green Results and Indicators
Copenhagen Research Congress on Climate Change 2009

ETH Zurich
ETH Zurich Annual Report – see "Social Commitment – Environment"
ETH Zurich Ecoworks Platform for Energy and Environmental Projects
ETH Zurich Environmental Report 2008
ETH Zurich Implementing Sustainability in Conferences
ETH Zurich Science City Campus Sustainability
ETH Zurich Seed Sustainability Student Sustainability Research
ETH Zurich Sustainability Current Events
ETH Zurich Sustainability Focus 2009
ETH Zurich Sustainability Organization
ETH Zurich Sustainability Research
ETH Zurich Sustainability Teaching
ETH Zurich Vision and Mission

National University of Singapore
NUS Developing a GHG Inventory
NUS Environmental Awards
NUS Environmental Education
NUS Environmental Policy
NUS Greentips
NUS Office of Environmental Sustainability - Resources
NUS Office of Environmental Sustainability Mission and Vision
NUS Sustainability Strategy Overview
NUS Take Action!

University of Oxford
Oxford Eco Reps
Oxford EcoFinance and Swap Shop
Oxford Energy Saving Carbon Trust Posters
Oxford Environmental Sustainability Facts and Figures
Oxford Environmental Sustainability FAQ's
Oxford Environmental Sustainability Homepage
Oxford Environmental Sustainability Policy 2008
Oxford Information for Departmental Administrators
Oxford OUSU Environment and Ethics Committee
Oxford Sustainable Travel Schemes
Oxford Waste A-Z
Oxford Water Saving at Work

University of Peking
(Website in Chinese)

University of Tokyo
Tokyo Sustainable Campus Project
Tokyo Sustainable Campus Project – Statistical Data

University of California - Berkeley
UC Berkeley 2008 Student Housing and Transportation Survey
UC Berkeley Bright Green Sustainability Goals
UC Berkeley Building Sustainability at Cal

UC Berkeley Cal Dining Environment
UC Berkeley Cal Green Fund Grants
UC Berkeley CalCAP
UC Berkeley CalCAP Feasibility Study
UC Berkeley Campus Sustainability Plan 2009
UC Berkeley Campus Sustainability Report 2009
UC Berkeley Climate Action Plan 2009
UC Berkeley Energy and Resources Group
UC Berkeley Environmental News
UC Berkeley Faculty/Staff Guide
UC Berkeley Giving Green
UC Berkeley Related Sustainability Programs
UC Berkeley Statement of Campus Commitment to the Environment
UC Berkeley Student Food Collective
UC Berkeley Student Guide
UC Berkeley Sustainability Climate and Energy Overview
UC Berkeley Sustainability Forums
UC Berkeley Sustainability Homepage
UC Berkeley Sustainability Learn and Academics Overview
UC Berkeley Sustainability Newsletter
UC Policy on Sustainability Practices
UC Berkeley Sustainability Waste Overview
UC Berkeley Talking Louder About Sustainability

Yale University

Yale Article – Zeroing in on Sustainability
Yale GHG Commitment – Developing the Climate Action Plan
Yale GHG Emissions Inventory 2009
Yale GHG Reduction Measures
Yale Greenhouse Gas Reduction Strategy
Yale Office of Sustainability Campus as a Living Lab
Yale Office of Sustainability Certifications We Offer
Yale Office of Sustainability Employment Opportunities
Yale Office of Sustainability Get Involved
Yale Office of Sustainability News and Events
Yale Office of Sustainability "About Us"
Yale Office of Sustainability Partners
Yale Office of Sustainability Publications and Resources
Yale Sustainability at Yale
Yale Sustainability Goals
Yale Sustainability Pledge
Yale Sustainability Vision

Others

AASHE Accelerating Campus Climate Initiatives
AASHE Cool Campus – A How-To Guide for College and University Climate Action Planning
AASHE Guide to Developing a Sustainable Food Purchasing Policy
AASHE Homepage
Academic Paper - Integrated Sustainability Education

Academic Paper on Mainstreaming Environmental Management: Case Studies from Australasian Universities
American College & University President's Climate Commitment Homepage
APPA's Practical Guide to Reducing the Campus Carbon Footprint
IARU Emissions Baseline Data Collection Form
Labs for the 21st Century Toolkit
The Energy Consortium Project Manager's Guide to Energy and Water Efficiency Measures for University Buildings
Whole Building Design Guide – Sustainable Laboratory Design