Kingston University: Sustainability in the Curriculum

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Preface

Kingston University is responding to the challenge of delivering sustainable education.

This report presents the key findings from a University-wide audit of curriculum content and staff engagement with sustainable issues. The design, implementation and conduct of the audit were guided by the cross-University Steering Group for Sustainability (see below for membership). Gerald Dawe, University Coordinator for Sustainability, interviewed a sample of senior staff and academics holding responsibility for the design and delivery of undergraduate curricula. The main conclusions from this exercise were reported at the national conference *Sustainability in the Curriculum: Moving the Benchmarks Forward*, hosted by the Steering Group, in September 2003.

Recent UK government initiatives (HEFCE, 2002 and DfES, 2003) have specified new obligations for Universities with regard to curriculum, organisational structures and management practices. The presentation of this report represents one critical step towards the achievement of these goals at Kingston University.

Steering Group for Sustainability, Kingston University

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Contents

List of Figures

List of Tables

Kingston University: Sustainability in the Curriculum Executive Summary

"… the people who will succeed 15 years from now, the countries which will succeed, are those which are most based on a sustainable vision of the world. That is what we should be training people to do."

Rt Hon Charles Clarke, MP, Secretary of State for Education and Skills
(Evidence to House of Commons Environmental Audit Committee: 25th March 2003)

Sustainability in Context

1. UNESCO has designated 2005-2015 as the 'Decade of Education for Sustainable Development'. Both the Higher Education Funding Council for England (HEFCE) and the Department for Education and Skills (DfES) have recently highlighted the contemporary relevance of *sustainability* in advisory benchmarks and action plans for universities (HEFCE, 2002; DfES, 2003). These are:

   - sustainability at the heart of HEI governance (HEFCE)
   - promoting sustainability through the curriculum (DfES and HEFCE)
   - performance against Environmental Management Systems (EMSs) and sustainable management of the educational estate (DfES and HEFCE)
   - local and global partnership activity (DfES)

2. This explicit commitment to the values and philosophy of sustainability in HE curricula and University management is consistent with the thrust of three earlier protocols which called for universities to be leaders in creating sustainable societies: the Association of University Leaders for a Sustainable Future's 'Tailloires Declaration'1992; Association of Commonwealth Universities' 'Swansea Declaration' 1993; and the Association of European Universities' 'COPERNICUS University Charter for Sustainable Development' 1994. These declarations argue that sustainability policies and practices should be integrated and encompass five core concerns:

   (i) ecological sustainability
   (ii) climatic change and biodiversity trends
   (iii) societal considerations and stakeholder relationships and responsibilities
   (iv) economic considerations, and
   (v) principles of inter-generational equality and justice.

3. HE institutions have responded slowly to the challenge. So far, the response has included publication of discipline-based assessments of progress in the inclusion of sustainability concerns; the publication of edited volumes showing how sustainability is delivered at universities in several continents (Leal Filho, 2000, 2002a); and the first tentative sustainability audits of educational institutions which mainly focus on environmental (and not curriculum) management activities (Dawe, Vetter and Martin, 2003, Flint, 2001, Venetoulis, 2001).

4. Debate continues as to what constitutes an adequate education in sustainability. Philosophical positions range from the spiritual to practical. There is a broad consensus, however, with regard to the need for a shared and holistic approach to people and environment which seeks connections between, and intelligent respect for, seemingly

disparate subject areas. In HE there should be an equal commitment to producing both analytical thinkers and inculcating the intellectual and practical skills required by 'change-agents' working for positive change in a globalising and increasingly unsustainable society.

5. This re-orientation of mission in HE would necessarily involve a significant re-assessment of the curriculum, re-focusing organisational structures and auditing and re-aligning the management and pedagogic systems. Sustainable curricula cannot be divorced from sustainable institutions. The latter finding also reflects both DfES and HEFCE policy toward sustainability. Finally, the sustainability curriculum should not centre solely on discipline-focused transfers of information; its educational impact resides in stimulating interactive and collaborative learning processes across the university.

Audit of sustainability in the curriculum

6. The extent to which that position has been achieved at Kingston University formed the basis of an inquiry addressed to a wide-ranging sample of senior staff and academics holding responsibility for the design and delivery of undergraduate curricula. The stated aims of the investigation were to:

    - determine, by audit, how and where sustainability features in course provision at Kingston University
    - contribute towards the development of a university-wide response to DfES and HEFCE initiatives and benchmarks
    - identify opportunities for promoting sustainability concerns and practices in curriculum design and delivery.

7. This interview-based exercise, supported by a pilot survey of students, included an evaluation of:

    - personal knowledge of the concept of sustainability
    - perceptions of Kingston University's performance in the area of sustainability and environmental management, and stakeholder relationships with alumni, businesses and the local community
    - the role of subject-related professional associations and institutions in driving or inhibiting change towards sustainable education
    - perceived barriers to extending the volume and content of sustainability teaching within curricula at Kingston University.

A total of 60 academic staff (8% of the University establishment) drawn from six Faculties and representing 49 discipline areas were interviewed.

Key findings

Sustainability in the curriculum

8. 48% of academics claimed to deliver *a minimum* of one module with an explicit focus on sustainability in the curriculum. This proportion falls to 21% when the more rigorous standards set for comprehensive sustainability education —items (i)-(v) above— are imposed.

9. 93% were keen on establishing some form of communication (including seminar series, internet exchanges, newsletter, further development of the sustainability intranet and website) to raise awareness and support sustainability education in cross-disciplinary areas.

10. For some disciplines, professional associations and accreditation bodies exerted an influence on course design and delivery with regard to the inclusion of sustainability content; some actually specified the inclusion of sustainability cores; others were less proactive and even conservative in their requirements.

11. Two-thirds identified barriers to the inclusion of more sustainability-related teaching; Five main reasons were offered to support this reticence (interviewees were allowed to choose more than one):

    - existing curriculum overload (16%)
    - perceived irrelevance of sustainability issues to focus of curriculum (16%)
    - benchmark requirements of accreditation bodies (12%)
    - lack of immediate staff expertise (11%)
    - anticipated irrelevance by students/inability of students to grasp issues (10%).

12. Solutions proposed by respondents to overcome these barriers included:

    - further empowerment of course teams (21%)
    - the encouragement of practical cross-Faculty, cross-School and cross-disciplinary initiatives in module and course design (21%)
    - further engagement of tutors and students in the design and delivery of sustainability-focused modules (20%)
    - building on student interest and commitment (15%)
    - promoting an 'inclusive' approach to staff development in sustainability education (11%)
    - improved and directed communication (5%)
    - resolving issues of course structure, including the resource base and course review and validation processes (5%).

Performance against DfES and HEFCE criteria

13. Evidence from the survey suggests that Kingston University would presently attract a score of 2 on the 5-point HEFCE scale for promoting sustainability education through the curriculum (where 5 is the maximum and preferred target score (HEFCE (2002)). Although some progress has been made, this has occurred in an *ad hoc* fashion across degree programmes. To achieve a higher score on the HEFCE curriculum benchmarks and to conform to the DfES action plan, academic staff need to explore and realise the holistic potential of sustainability education through a more co-ordinated approach to curriculum design and delivery. This engagement will require support and direction from University management committed to changes in curricula. There is a need to establish, in parallel, a practical Sustainability Management System (SMS) or Environmental Management System (EMS) dealing with the university's estate which would stimulate, interact with and enhance pedagogic changes.

14. HEFCE (2002) has set a target for 100% of courses to include sustainability tuition. DfES (2003) report that an assessment of changes towards sustainability will feature in the university grant settlement process. Based on the curriculum survey, the following practical recommendations are proposed to progress this global requirement for sustainable education at Kingston University. These focus on delivering attitudinal change in students and the wider university community as much as teaching core analytical skills within the context of benchmarking statements and institutional processes.

Recommendations

15. Disseminate the findings of the curriculum survey and imperatives of sustainable education with regard to DfES and HEFCE benchmarks and targets:

(i) staff training via staff induction programmes and a phased engagement with PP4SD (Professional Partnerships for Sustainable Development)
(ii) capacity building through enhanced levels of staff engagement in sustainable education by providing seminar series, the electronic publication of a sustainability newsletter, and updating of the university website
(iii) introducing intra- and extra-curricular workshops for students
(iv) producing a concise booklet regarding sustainability and university teaching, for circulation among university staff
(v) provide a briefing to new staff during their induction process

16. Develop practical initiatives that demonstrate a University commitment to sustainability education:

(vi) the adoption of a University-wide Sustainability Management System (SMS) or Environmental Management System (EMS) would provide a clear signal of intention and create an institutional climate conducive to further curriculum change
(vii) consultation with regard to sustainability objectives to ensure 'inclusivity' and the engagement of staff, students and other groups in the University community
(viii) setting up networks and 'conversational partnerships' to contextualise sustainable education in cross-disciplinary degree programmes

17. Establish a University-wide management system (SMS or EMS) to set and drive the sustainability agenda towards DfES and HEFCE goals:

(ix) co-ordinate sustainability education as a Key Skill with quality assurance processes and course review and validation processes
(x) align sustainability education with the University Corporate Plan
(xi) extend sustainability education in disciplinary and cross-disciplinary areas
(xii) evaluate and incorporate the Kingston University Steering Group for Sustainability and the post of Coordinator for Sustainability presently supported by the cross-Faculty component of the HR budget

18. These recommendations are directed towards the objectives of the Tailloires Declaration (1992)

"Universities educate most of the people who develop and manage society's institutions. For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technologies and tools to create an environmentally sustainable future."

These ideals have also been adopted by the COPERNICUS Charter[1] (1994)

"Universities and equivalent institutions of higher education train the coming generations of citizens and have expertise in all fields of research, both in technology as well as in the natural, human and social sciences. It is consequently their duty to propagate environmental literacy and to promote the practice of environmental ethics in society, in accordance with the principles set out in the Magna Carta of European Universities and subsequent university declarations, and along the lines of the UNCED recommendations for environment and development education."

[1] The COPERNICUS Charter for Sustainable Development has been organised under the auspices of the European Universities Association. It has been signed by over 300 European universities and endorses 10 sustainability Principles of Action (PoA) set out at www.copernicus-campus.org

Kingston University: Sustainability in the Curriculum

"You don't have to be an expert to realise that sustainable development is going to become the greatest challenge we face this century."

Tony Blair 2001

"… the people who will succeed 15 years from now, the countries which will succeed, are those which are most based on a sustainable vision of the world. That is what we should be training people to do."

Rt Hon Charles Clarke MP (Secretary of State for Education and Skills) 2003

"Universities educate most of the people who develop and manage society's institutions. For this reason, universities bear profound responsibilities to increase the awareness, knowledge, technologies and tools to create an environmentally sustainable future."

The Tailloires Declaration (Association of University Leaders for a Sustainable Future) 1992

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1. Sustainability in Policy Context

UNESCO has designated 2005-2015 as the 'Decade of Education for Sustainable Development'. Both the Higher Education Funding Council for England (HEFCE) and the Department for Education and Skills (DfES) have recently highlighted the contemporary relevance of *sustainability* in advisory benchmarks and action plans for universities (HEFCE, 2002; DfES, 2003). These are:

- sustainability at the heart of HEI governance (HEFCE)
- promoting sustainability through the curriculum (DfES and HEFCE)
- performance against environmental management systems (EMSs)[2] and sustainable management of the educational estate (DfES and HEFCE)
- local and global partnership activity (DfES)

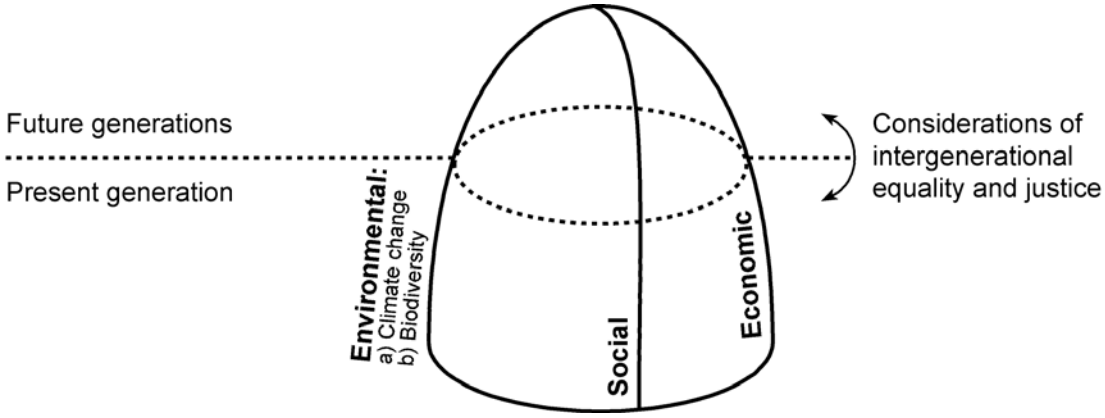
This explicit commitment to the values and philosophy of sustainability in HE curricula and University management is consistent with the thrust of three earlier protocols which called for universities to be leaders in creating sustainable societies: the Tailloires Declaration 1992; Association of Commonwealth Universities 'Swansea Declaration' 1993; and the Association of European Universities' 'Copernicus Charter' 1994 (Wright, 2002) to which Kingston University is a signatory. These declarations argue that sustainability policies and practices should be integrated and encompass five core concerns:

[2] An environmental management system (EMS) such as the ISO14001 standard or EMAS (Eco-Management and Audit Scheme) typically requires: i) top management support ii) formalisation of the EMS iii) documentation of agreed procedures iv) employee involvement and training v) establishment of focus groups or teams around particular issues vi) identification of the effects of the institution on the environment and goals to reduce bad effects and increase beneficial ones vii) identification of impacts beyond the institution, to involve suppliers, etc. viii) development of comprehensive baseline data, and ix) development of internal audits using in-house expertise to identify ways to move towards environmental improvement (Bridgen and Helm (2000)).

(i) ecological sustainability, the premier concern
(ii) climatic change and biodiversity trends
(iii) societal considerations and stakeholder relationships and responsibilities
(iv) economic considerations
(v) principles of inter-generational equality and justice.

It is important to appreciate that concerns (i) to (iv) are closely interrelated and cannot be considered in isolation, and that they have a temporal element (v): in other words, they travel forward from generation to generation. All aspects need to be considered together. This situation is represented as Figure 1 which depicts the three core components embedded in the *triple bottom line*[3] approach to sustainability.

Figure 1 Conceptual basis of sustainability



HE institutions have responded slowly to the challenge of sustainability. So far, the response has included publication of discipline-based assessments of progress in the inclusion of sustainability concerns; the publication of edited volumes showing how sustainability is delivered at universities in several continents; and the first tentative sustainability audits of educational institutions which mainly focus on environmental (and not curriculum) management activities.

Table 1 charts the increasing momentum for inclusion of sustainability within legislation, business practices and performance indices, and education. HE institutions are now expected to address key factors as identified by DfES and HEFCE.

[3] The term 'triple bottom line' was originally coined by John Elkington of Sustainability Ltd. It refers to an assessment of: (i) a company's financial balance sheet; (ii) combining this with an assessment of its social impact; and (iii) integrating this with environmental concerns (Henriques (2001)).

Table 1 Landmark events and publications in sustainability

Date	Event	Reference(s): See Section 11
1987	*Our Common Future* published: the formal start of 'sustainability' as a concept. (World Conference on Environment and Development)	WCED(1987)
1990	**[The first]** Commitment to sustainability by universities: the Kyoto Declaration[4]: calls for a clearer vision of how to achieve sustainability within universities. (Ninth International Association of Universities Round Table)	Wright (2002)
1992	Further commitment is made by universities towards sustainability: *Tailloires Declaration*. (University Leaders for a Sustainable Future)	Wright (2002)
	International Political Conference: 'Earth Summit' and Agenda 21 held in Rio de Janeiro. United Nations Conference on Environment and Development (UNCED). Chapter 36 of Agenda 21 is entitled: *Promoting education, public awareness and training*	Wright (2002)
1993	Commission of European Communities (1993) publishes 'programme of action in relation to the environment and sustainable development'. This evolves into 5th and 6th Environmental Action Programme (EAP)	Commission of the European Communities (1993).
1993	*Swansea Declaration*: declares that universities have a major responsibility to help societies develop in an "environmentally secure and civilized world" (Association of Commonwealth Universities)	Wright (2002)
1994	Association of European Universities (AEU) (formerly Conference of European Rectors) publishes *COPERNICUS University Charter for Sustainable Development:* this calls for universities to be leaders in creating sustainable societies, and stresses the need for new mind-sets and environmental values within the higher education community	Wright (2002) www.copernicus-campus.org
	[The first] UK Government sustainable development strategy is drawn up. This concerns: a) Sustainable Development b) Biodiversity c) Climate Change	Secretary of State for the Environment (1994a, 1994b, 1994c)
	[The first] Major text on sustainable education appears in the US: *Earth in Mind: On Education, Environment and the Human Prospect* by David Orr. The first series of textbooks on sustainable education appears in the UK	Cited in Jucker (2002) See also e.g. Ennals (1994)
1996	*Education for Sustainability* book by Huckle and Sterling is published within the UK (Earthscan, London)	Huckle and Sterling (1996)
1998	UK Government sets up the Sustainable Development Education Panel (SDEP) within Department of Food and Rural Affairs (DEFRA). SDEP gives rise to DfES *Sustainable Development Action Plan* in 2003	www.defra.gov.uk/environment/sustainable/educ panel
	Kingston University is now a signatory to the *COPERNICUS University Charter for Sustainable Development*	www.copernicus-campus.org Wright (2002)
1999	British Standards Institution (BSI) publishes *The Natural Step and ISO 14001: Guidance on the Integration of a Framework for Sustainable Development into Environmental Management Systems*	Rowland and Sheldon (1999)
1999	**[The first]** Financial investment index for tracking sustainable companies launched: the Dow Jones Sustainability Group Index (DJSGI)	Sanchez (2000)
	Current UK governmental strategy for sustainable development published: *A Better Quality of Life* (an update to Secretary of State for the Environment (1994a))	

(Continued over)

[4] This is not to be confused with the Kyoto Protocol which forms an adjunct to the Framework Convention on Climate Change (Oberthür and Ott (1999)).

(Table 1 continued)

Date	Event	Reference(s): See Section 11
2000	280 out of 500 European universities from 36 countries now signed up to the *COPERNICUS University Charter for Sustainable Development* (AEU) introduced in 1994	Wright (2002)
	Communicating Sustainability is published: a multi-authored volume, edited by Leal Filho (Peter Lang, Frankfurt)	Leal Filho (2000)
	Papers appear on teaching sustainability at HE institutions in: Germany, India, Italy, USA	Leal Filho (2000) et al.
	International Journal of Sustainability in Higher Education launches (Emerald Press, Bradford)	caliban.emerald-library.com
2001	*Sustainable Education: Re-visioning Learning and Change* book by Sterling is published (Green Books, Dartington)	Sterling (2001)
	[The first] Sustainability audits of universities are published: (i) Newcastle University, Australia (by Flint) (ii) Redlands University, CA, USA (by Venetoulis)	Flint (2001) Venetoulis (2001)
	British Standards Institution (BSI) publishes: *Sustainability: A Manager's Guide*	Henriques (2001)
	PP4SD course launched: *Professional Practice for Sustainable Development* (a foundation course)	Baines, Brannigan and Martin (2001)
	UK tax, related to sustainability, emerges: the Climate Change Levy (CCL) which is tied into the Kyoto Protocol for reducing carbon emissions, related to Climate Change	*CCL:* www.hmce.gov.uk/business/othertaxes/ccl.htm *Kyoto Protocol:* Oberthür and Ott (1999)
2002	*Teaching Sustainability at Universities* is published, edited by Leal Filho (Peter Lang, Frankfurt)	Leal Filho (2002a)
	Papers appear on teaching sustainability in HE: Brazil, Cana- da, Greece, Latvia, Mexico, the Netherlands, Spain, USA	Leal Filho (2002a) and other authors.
	International Political Conference: World Summit for Sustainable Development (WSSD) held in Johannesberg	
	Higher Education Funding Council for England (HEFCE) sustainability Benchmarks appear: 7.1: Sustainability at the heart of HEI governance 7.2: Promoting sustainability through the curriculum 7.3: Performance against environmental management systems	HEFCE(2002) *Evaluating the Regional Contribution of an HEI: A Benchmarking Approach*
2003	Department for Education and Skills (DfES) *Sustainable Development Action Plan* appears (origins in 1998 (SDEP)). There are 4 Objectives: 1. Sustainability in the curriculum 2. Environmental management on estates / campuses 3. Encouragement of environmental management in publicly-funded educational establishments 4. Regional links will be encouraged with the local communities, especially regarding 'capacity-building'[5]	DfES (2003) *Sustainable Development Action Plan*
	[the first] sustainability audit of a UK educational institution	Dawe, Vetter and Martin (in press)
	[the first] UK university –Leeds Metropolitan– becomes certified to ISO14001 Environmental Management System	www.lmu.ac.uk

[5] 'Capacity-building' is a term meaning to increase peoples' knowledge and capacity so that they are sufficiently informed to make intelligent decisions within the field of sustainability.

2. Sustainability: Definition and Direction

This report which focuses on Kingston University adopts a broad approach to the definition of *sustainability* as*:*

"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Gro Harlem Brundtland, 1987)

and embraces the related concept of *sustainable development* and the policy framework embedded in Local Agenda 21. It is written with regard to the benchmarks and other targets advised by HEFCE and DfES (Section 1 refers).

Sustainability is an holistic and interconnected concept. A wide review of literature confirms that, at an absolute minimum, sustainability should address three core components of environment, society and economics. From the perspective of accountancy, but also accountability, the concept of the 'triple bottom line' as a tool for responsible management applies equally to companies and HE institutions (Figure 1). Sustainability now has a legitimate place on the academic agenda. Responsibility is placed on HE institutions to address the five benchmarks and action plans outlined in Section 1 through governance, the curriculum and management systems.

If we do not adjust there is evidence to suggest that we will be compromising the chances of a reasonable quality of life for both present and future generations. To adopt sustainability principles at the core of all human activities will require some fundamental changes, many of which will be very difficult technically, culturally and politically. Universities as centres of innovation and learning should be at the forefront of this development.

3. Sustainability Education

3.1 Representation in the UK

Debate continues as to what constitutes an adequate education in sustainability. Philosophical positions range from the spiritual to practical. There is a broad consensus, however, with regard to the need for a shared and holistic approach to people and environment which seeks connections between, and intelligent respect for, seemingly disparate subject areas. In HE there should be an equal commitment to producing analytical thinkers and inculcating the skills required by 'change-agents' working for positive change in a globalising and increasingly unsustainable society.

In the United Kingdom there is evidence of an awakening institutional concern and commitment towards sustainability issues in HE. There is a total of 51 institutions claiming an active involvement with sustainability and / or Environmental Management Systems (EMSs). Table 2 illustrates the range of activity and variable level of compliance. In addition to the 26 institutions of Higher Education listed, there are 25 institutions which have been excluded because of a lack of information about their sustainability activities[6].

[6] The 25 are: 17 COPERNICUS or COPERNICUS and HEPS universities, 6 HEPS and 2 HEEPI-associated universities or consortia of universities have been excluded from the analysis.

Table 2 Overview of sustainability activity at UK Universities and HE Colleges (2003).

University	Sustainability or Environmental Management Activity: Commitment to sustainability within curricula	SMS / EMS present, or active environmental management	Driven by	Membership of University sustainability network
1. Aberdeen	[not known]	Sustainable development – orientated. Very active	HEPS	HEPS
2. Bath	Research present which incorporates sustainability, generically, into all subject areas	There is a commitment to improve existing EMS. *"… pleased to have participated in HEFCE initiative towards the development of meaningful environmental performance indicators and best practice guides"*	VC and HEFCE	[none] HEFCE-originated.
3. Birmingham	[not known]	Sustainable development – orientated. Active	EPS	HEPS
4. Bradford	[not known]	Leaders of HEEPI.	SEC	HEEPI
5. Bristol	Sustainable curriculum audit due for completion July 2003	*Reducing Staff Commuting by Car* report now published	Working Party	HEEPI-associated.
6. Brunel	[not known]	Sustainable development – orientated. Active. SEC: external links with business	VC and SEC	[none]
7. Cambridge	The Sustainability Learning Networks Programme (SLNP) now developed for businesses.	[not known]	SEC and Environment, Health and Safety C'ttee	COPERNICUS[7] & HEEPI
8. Cardiff	[not known]	Saved £70K per annum on energy consumption through remedial actions which incurred expenditure of £25K	-	[none]
9. Derby	[not known]	Waste management bill reduced by 10%. HEEPI-associated	SEC and HEEPI	HEEPI-associated
10. Durham	[Higher education for sustainability is implied by COPERNICUS membership]	Sustainable development – orientated. Active	-	COPERNICUS
11. Hertfordshire	Students involved in Environmental Review stage of EMS.	'Shadow' ISO 14001 now being implemented	SEC	COPERNICUS
12. Kingston	Curriculum audit now completed	None implemented. *Ad hoc* and sporadic measures only	SEC and SGS	COPERNICUS
13. Leeds Metropolitan	[not known]	ISO 14001-certified EMS since October 2003	HEEPI	HEEPI

(Continued)

[7] COPERNICUS: Universities listed are formal signatories to the *COPERNICUS University Charter for SustainableDevelopment*. It was launched by the European Universities Association in 1998

(Table 2 continued)

Sustainability or Environmental Management Activity

University	Commitment to sustainability within curricula	SMS/EMS present, or active environmental management	Driven by	Membership of University sustainability network
14. Liverpool John Moores (LJMU)	[not known]	Very active. Via auditing of water-use, received rebate of £80k from supplier. Costs now reduced from £257k p.a. to £95k p.a. with investment of £75k	HEEPI	COPERNICUS HEPS HEEPI-associated.
15. Loughbor-ough	[not known]	Environmentally –orientated. Active	EPS	HEPS
16. Newcastle	[not known]	*A Practical Guide to Waste Management for Universities and Colleges* now produced	EAUC	EAUC-fostered publication.
17. Nottingham Trent (NTU)	[Higher education for sustainability is implied by COPERNICUS membership]	Environmentally–orientated EMS. Active	EPS	COPERNICUS
18. Oxford Brookes	Sustainable development tuition available for (most) students	[not known]	SEC and EPS	[none]
19. Portsmouth	[not known]	Intention is to prevent negative environmental impacts and promote 'sustainable' exploitation	EPS	COPERNICUS
20. Sheffield Hallam (SHU)	Sustainable development tuition available for (most) students	[not known]	EPS	HEPS
21. Southampton (University and Institute of Higher Education)	Sustainable development module now being developed for (most) students	[not known]	SEC	[none]
22. Sunderland	EPS drives responsibility for promoting long-term care for environment via curricula	Environmentally–orientated. Active	EPS	COPERNICUS
23. Sussex	[Higher education for sustainability is implied by COPERNICUS membership]	Environmental Review (preparatory stage of EMS) completed	VC	COPERNICUS
24. UMIST (Univ. of Manchester Institute of Science and Technology)	[not known]	*Reducing Energy and Water Consumption at UMIST* completed. HEEPI-associated	HEEPI	HEEPI-associated
25. University College London	[not known]	*Financing Energy Efficiency Improvements: Funding Procedures at UCL* completed. HEEPI-associated	HEEPI	HEEPI-associated
26. Westminster	Is drawing up a generic sustainability policy		SEC	COPERNICUS

See overleaf for explanation of Acronyms

Acronyms:

EAUC: Environmental Association for Universities and Colleges
EMS: Environmental Management System
EPS: Environmental Policy Statement
HEEPI: Higher Education Environmental Performance Improvement. It is a research project of HEFCE's Good Management Practice Initiative
HEFCE: Higher Education Funding Council for England
HEPS: Higher Education Partnership for Sustainability initiated by Forum for the Future. It is a programme in which members are expected to undertake one or more initiatives relating to sustainability. HEPS concludes in December 2003
SEC: Sustainability or Environmental Coordinator
SGS: Steering Group for Sustainability
VC: Vice-Chancellor

Source: *Authors' survey.*

3.2 Content and objective

Such re-orientation of mission in HE would necessarily involve a significant re-assessment of the curriculum, re-focusing of organisational structures and auditing and re-aligning the management and pedagogic systems. Sustainable curricula cannot be divorced from sustainable institutions. The sustainability curriculum should not centre solely on discipline-focused transfers of information; its educational impact resides in stimulating interactive (student-centred) and collaborative learning processes across the university.

Although there is a wide-ranging debate on the nature of sustainable university education, a broad consensus has emerged for three main learning outcomes. These are articulated by Rowe (2002) as:

(i) increased caring about the future of society and notions of 'intergenerational equality' and justice between generations
(ii) empowerment of students and a heightened belief that they, themselves, can make a difference
(iii) an increased personal willingness and commitment to participate in solving societal and environmental problems.

To meet these objectives, Leal Filho (2002b) outlines six guidelines for promoting sustainability teaching and curriculum design in HE:

(i) sustainability should not be seen as a discrete discipline. The introduction of sustainability into the curriculum involves the provision of new skills directed towards the understanding and achievement of an harmonic 'people-environment-nature' relationship. It is predicated as much on winning 'hearts and minds' as formal instruction
(ii) sustainability is not the exclusive preserve of one established discipline. It is part of a shared life and common domain. It is interdisciplinary in its philosophy and focus
(iii) there are many and flexible approaches to teaching sustainability. The main pedagogic thrust should be towards raising consciousness. Jüdes (2000) argues that providing positive ideas or visions will be more instructive than catastrophic scenarios; when challenged people are able to devise unexpected and imaginative solutions to problems
(iv) the precepts of sustainability need to be demonstrated. The best way to reach out to people who do not understand sustainability, or who resist the philosophy, is to demonstrate its essence and practical application.

(v) systematic progress in teaching sustainability cannot be made without changes in the content or focus of curricul.

(vi) it is a myth that only a handful of experts are qualified to engage in sustainability education. Sustainability has universal currency. Indeed, without realising it, many practitioners and university teachers have unwittingly subscribed to its fundamental principles and core values and have practised sustainability.

These concepts are consistent with the belief embedded in the Swansea Declaration[8] (1993) that universities should *"review their physical operations, the desire for environmentally literate students and faculty, and an emphasis on the ethical obligations universities have to present and future generations"* (Wright, 2002). In short: sustainable curricula cannot be divorced from sustainable institutions.

3.3 Value systems and sustainability

It is important to acknowledge the significance of sustainability as a value system with related moral, ethical and emotional dimensions. These values are centred around the many certainties regarding destructive trends on the face of the earth, and consequences for societies and their lifestyles.

There is a compelling argument to address these issues. To do nothing is to assent to existing trends and their inevitable outcomes (Partridge, 2001). Leal Filho (2002b) continues, and defines the spirit of sustainable education:

"*No matter if one chooses to focus, on technical aspects, or on ethical issues, the very fact these aspects are being discussed under a sustainability perspective means that the very purpose of sustainable education is being reached."* (Leal Filho, 2002b, p. 21)

3.4 Alternative paradigms

How these changes in value systems are to be introduced in HE has been addressed in the alternative paradigms of sustainability education (Sterling, 2001) and emancipatory perspectives of sustainability (Wals and Jickling, 2002). These views emphasise the 'hidden depths' of sustainability: in other words that the underlying philosophy and culture of education in HEIs is almost never addressed explicitly. For example, Sterling (2001) and Novo (2002) argue that much current pedagogy is, by default, concerned with mechanistic, information-based or economic ideologies or paradigms. Scott and Gough (2003) take a slightly different, but allied approach: discussing existing pedagogy from *technological, cultural, micropolitical, biographical* and *structural* perspectives. It is of course, accepted that sustainability is driven by its own set of values (Porritt (1996), Sterling (2001)) albeit values which are accepted at governmental policy level (Secretary of State for the Environment, 1994a, 1994b and 1994c). However, the implication is that, at both the philosophical and ideological levels, there are many valuable ways to encourage tutors to consider new forms of pedagogy surrounding sustainability.

Sterling (2001) and Novo (2002) claim that there is an urgent need to change from 'transmissive' to 'transformational' learning. Education needs to change from flows of information to collaborative learning processes. This emphasis and differentiation in core values is embodied in Table 3.

[3]Proposed by the Association of Commonwealth Universities, representing over 400 universities in 47 countries.

Table 3 Alternative paradigms of conventional 'mechanistic' education and education for sustainability

Core Values	
Mechanistic View	**Sustainability or 'Ecological' View**
Preparation for economic life	Participation in all dimensions: social, economic and environmental
Competition	Cooperation and collaboration
Specialisation	Integrative understanding
Effective learning	Transformative learning
Standardisation	Diversity with coherence
Faith in 'the system'	Faith in people
Modernity	Ecological sustainability
Decontextualized and abstract knowledge	More emphasis on local, personal, applied and first-hand knowledge
Confusion of 'data', 'information' and 'knowledge'	Ultimate concern with wisdom
Disciplines and defence of boundaries	Greater transdisciplinarity/domains of interest
Emphasis on teaching	Integrative view: teachers also learners, learners also teachers
Cognitive experience	Also affective, spiritual, manual and physical experience
Meaning is given	Meaning is constructed and negotiated

(Abstracted from Sterling, 2001)

Wals and Jickling (2002) claim that the introduction of sustainability into HE will bring academics into 'whole new pedagogic worlds'. In turn, they will be drawn into new areas of learning and research. Dimensions of emancipation include *sustainability* as:

(i) socially constructed *reality* (and as such a phenomenon to be taken seriously)
(ii) *ideology* and therefore *political*
(iii) *negotiated*, the result of (on-going) negotiations
(iv) *contextual*, its meaning is dependent on the situation in which it is used
(v) a *vision* to work towards
(vi) *dynamic* and/or *evolving* conceptually
(vii) controversial and the source of *conflict* (both internal and personal, and between others within pedagogic groups)
(viii) *normative, ethical* and *moral*. Sustainability as *innovation* or a *catalyst* for change
(ix) a *heuristic*, a *tool to aid thinking*.
(x) a temporary *stepping stone* in the evolution of environmental education and of environmental thought.

(Abstracted from Wals and Jickling, 2002)

Sterling (2001) and Wals and Jickling (2002) effectively set the context for the development of sustainability education. They acknowledge that tutors have a moral obligation to alert students to different approaches to sustainability. The process of sustainability education should not be delivered by *teaching* or *imposing* particular notions. Its focus should be *interactive and collaborative learning processes*, not simply *transfers of information* (Simon, 2002).

4. Kingston University: Audit of Sustainability in the Curriculum

4.1 Aims of the investigation

Kingston University is the first UK university to carry out a thorough curriculum assessment for sustainability.

Kingston has an academic staff complement of 642 full-time and 132 part-time members. There are 12,280 full time and 3,306 part time students. Teaching is delivered on 4 main campuses. In addition, St. George's Hospital at Tooting provides several of the courses managed by the Faculty of Health and Social Care.

A representative sample of senior staff, Course Directors, and other academic staff was interviewed in order to determine the extent to which sustainability has been embedded in curricula at Kingston University.

The stated aims of the investigation were to:

- determine, by audit, how and where sustainability features in course provision
- contribute towards the development of a University-wide response to DfES and HEFCE initiatives and benchmarks
- identify opportunities for promoting sustainability concerns and practices in curriculum design and delivery.

This interview-based exercise, supported by a pilot survey of students, was conducted by the Co-ordinator for Sustainability. It included an evaluation of :

- personal knowledge of the concept of sustainability
- perceptions of Kingston University's performance in the area of sustainability and environmental management, and stakeholder relationships with alumni, businesses and the local community
- the role of subject-related professional associations and institutions in driving or inhibiting change towards sustainable education
- perceived barriers to extending the volume and content of sustainability teaching within curricula at Kingston University.

A copy of the interview schedule is attached as Appendix A.

4.2 Characteristics of respondents

A total of 56 academic staff (8% of the University establishment) drawn from six Faculties and representing 49 discipline areas were interviewed. In addition, discussions were held with four members of senior management. Table 4 highlights the distribution of respondents across Faculties. Table 5 shows the academic role of respondents.

The focus on one University offers the distinct advantage in depth and context of interpretation. Furthermore, the size of sample exceeds that of the cross-national survey completed by Jucker (2002) based on responses from 3.8% of the 261 Humanities Faculties in universities in The Netherlands, Germany, Switzerland and the United Kingdom.

Table 4 Sampling fraction from each Faculty

Faculty	F	M	Total	% Interviewed
Faculty of Art, Design and Music	6	4	10	9
Faculty of Arts and Social Sciences	6	6	12	12
Faculty of Business / Business School / Law School	2	5	7	6
School of Education (stands alone as a 'Faculty' at present.)	1	1	2	6
Faculty of Health and Social Care	4	1	5	4
Faculty of Science	5	7	12	11
Faculty of Technology	2	6	8	8
Total	**26**	**30**	**56**	**8**

Table 5 Characteristics of respondents

Role of Interviewee	Number	%
Course Directors:		
Postgraduate (PG) Course Directors	8	14
Undergraduate (UG) Course Directors	17	31
PG and UG Course Directors	4	7
Other staff:		
Teaching 1-2 UG or PG modules (part-time)	12	21
Teaching 3+ UG or PG modules (full-time)	15	27
Total	**56**	**100**

5. Staff Experience and Knowledge of Sustainability

5.1 Awareness of the concepts of sustainability

Table 6 summarises respondents' familiarity with key sustainability concepts. It confirms that the majority had knowledge of climate change and biodiversity, issues that receive high profile coverage in the quality press. Two key areas require attention which illustrate a lesser understanding or appreciation of sustainability. These are the terms 'intergenerational equity / equality' and the 'precautionary principle' which remain key policy facets of sustainability. This finding is not unexpected given that most interviewees claimed not to be sustainability specialists, were not conversant with the formal vocabulary of sustainability, and had not been given prior warning of these questions. However, intergenerational issues are key to sustainability and training should be available to all staff to secure this foundation in sustainability education.

Table 6 Staff understanding of the definition of key sustainability concepts

Core concept	Staff Response (%)		
	Yes	**No**	**Ambiguous**
Kyoto Protocol	88	10	2
Framework Convention on Climate Change	85	9	6
Convention on Biodiversity	80	18	2
Brundtland definition	60	40	6
Precautionary Principle	34	64	2
Intergenerational equity / equality	28	68	4
Convention to Combat Desertification	28	68	4

Based on 52 respondents

5.2 Difficulty with the term 'sustainability'

One third of respondents confessed to having difficulty with the term sustainability. This situation was ascribed to the following factors:

(i) ambiguity in meaning and difficulty in defining the concept (e.g. the subconscious mixing of 'environmental sustainability' with the meaning of 'sustain' in music, or 'sustainable finance' or 'sustainable business')
(ii) contention that the concept is not new, and colleagues have been practising it for much of their lives: 'sustainability' was viewed as modern jargon defining what, in effect, had been delivered to students for many years
(iii) confusion with areas where the adjective sustainable has recently been adopted e.g. '*sustainable* employment' and '*sustainable* economies'
(iv) suspicion that the term has been misused as a form of rhetoric by government or business, and manipulated away from its original policy implications
(v) some subject areas are selecting and emphasising different dimensions of sustainability (see Section 1) e.g. *social* and *economic* aspects, rather than *environmental*
(vi) finally, that there is no University policy guiding institutional practice and organisation

Sustainability is a contested concept and philosophy. Avoidance in using the term can deny students the opportunity for full engagement. Stables (2001, p. 127) (cited in Scott and Gough (2003)) argues the case:

> *"Whatever our broader philosophical assumptions —whether we see ourselves as scientific realists, critical realists, post-foundationalists, or even relativists— language permeates our lives as environmental educators. 'Sustainability' is a word. Like all words, it relates to something outside itself, but, like all words, its precise meaning is always dependent on the context in which it is used. Given the possibility that we might eventually fail to sustain life on this planet, or, at least, diminish its richness, then there seems little of more importance than pursuing the debate about what we mean by this term, and what the adoption of such a meaning might lead us to do".* (Scott and Gough (2003), p. 30)

5.3 Reading around sustainability

Academic staff were questioned about their reading habits with regard to sustainability issues in areas of teaching expertise. Table 7 shows that 50% were unable to specify any reading material focused on sustainability in their discipline.

Table 7 Reading on sustainability issues

Type of material read	**Staff response**	
	No.	**%**
Books	17	30
Journals	6	11
Governmental / international regulations / laws /guidances	5	9
Nothing specified	28	50
Total	56	100

A search using COPAC[9] for the 24 subject areas (28 interviewees) for which academic staff had no recollection of a sustainability literature, however, confirms that in 15 areas there existed a significant and contextualised sustainability literature. This conclusion has implications for staff claims regarding resource barriers to the adoption of sustainability.
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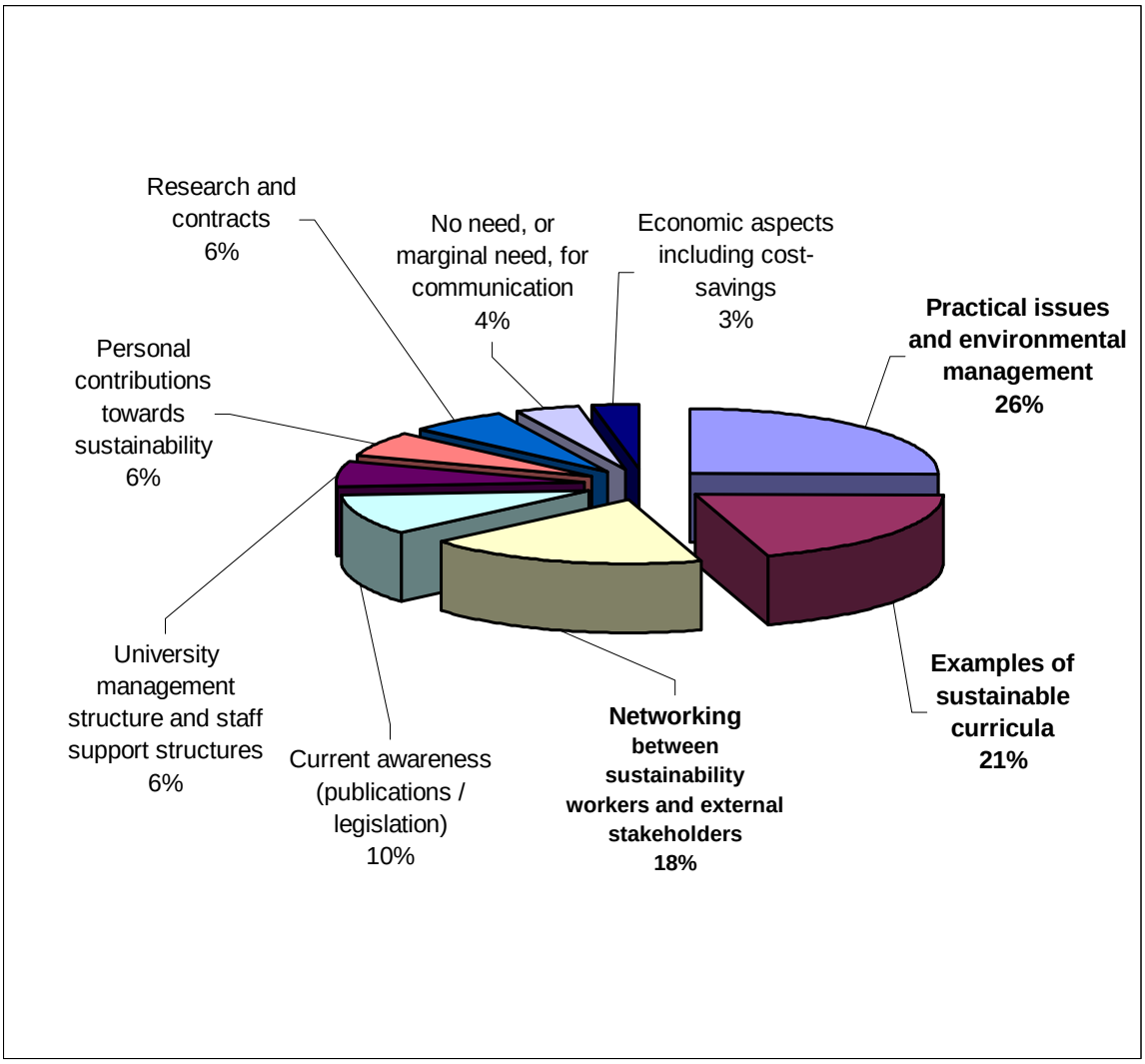
5.4 Support and sustainability

Overall, 93% of those interviewed were keen to establish University-wide support for sustainability education as the basis for curriculum change. Two-thirds sought support in three key areas: practical sustainability and university environmental management (26%), examples of sustainable curricula (21%) and networking within the university and with external stakeholders (18%) (Figure 2). Other priorities for induction and support centred on personal action for sustainability, current awareness briefings, research, and benefit-cost analysis of university actions towards sustainability, and university support structures for sustainability.

[9] COPAC® is a union catalogue. It provides free access to the merged online catalogues of 24 of the largest university research libraries in the UK and Ireland plus the British Library and the National Library of Scotland. http://www.copac.ac.uk/copac/

Figure 2 Areas identified for sustainability support and communication



Based on 56 respondents

5.5 Role of professional associations and accreditation bodies

For some disciplines, professional associations and accreditation bodies exerted an influence on course design and delivery with regard to the inclusion of sustainability content. Some actually specified the inclusion of sustainability cores; others were less prescriptive and even conservative in their requirements (Table 8).

A total of 40 professional and learned associations/institutions were identified which had an influence over undergraduate degree courses at Kingston University. It was commonly believed that, where academics were engaging with environmental issues, this focus would inevitably embrace sustainability.

Table 8 Professional institutions / associations with concerns for sustainability

Professional institution	Course area	Commentary from respondent
CIPD Chartered Institute of Professional Developers	C-S-R and HRM parts of business courses	They are taking an increased interest in C-S-R including sustainability
ICE* Institution of Civil Engineers	Civil Engineering	1. Sustainability is being introduced 2. ICE is showing concern about sustainability
RICS* Royal Institute of Chartered Surveyors	Surveying	Pressure is coming from both legislation and the client base to move RICS recognition towards sustainability
RCS[+] Royal Society of Chemistry	Chemistry	Growth area in 'green chemistry'

*Confirmed as a course validator. [+]Course requires accreditation by this body.

Professional institutions which had a firm commitment to the inclusion of sustainability in the curriculum were centred around architecture, surveying, chemistry, corporate social responsibility (C-S-R) / human resource management (HRM), and civil engineering. Even if these bodies were not directly involved in the accreditation of first degree programmes or had not participated in University validation and review processes, it was claimed that they would exert an influence on course content and style. Furthermore, professional bodies which subscribed to ethical considerations were felt to have a latent concern for sustainability. Examples given included the: Political Studies Association, Nursing and Midwifery Council, General Social Care Council, British Psychological Association, and the Health Professions Council.

6. Curriculum Content and Sustainability

6.1 Sustainability content in the curriculum

Overall, 48% of respondents *claimed* to deliver *a minimum* of one module or teaching equivalent with an explicit focus on sustainability. A further 18% affirmed their intention to make sustainability issues more explicit within existing course structures. However, 19% of those interviewed acknowledged the absence of a sustainability component in the curriculum they delivered (Table 9).

It is significant, however, that when the five standards set for comprehensive sustainability education outlined in Section 1 are applied to courses, the compliant proportion of 48% is reduced to 21% (Table 11). Some of the relationships claimed between subject areas and sustainability were found to be tenuous, whilst others were more substantial.

Table 9 Number of modules claimed to deliver sustainability

Modules claimed to relate to sustainability	Subject areas	Comment
All modules	• MA Sustainable Futures • Civil Engineering • Business (Corporate Social Responsibility)	MA Sustainable Futures not presented in 2002/3 Strands of 'sustainability' incorporated throughout Civil Engineering programme The C-S-R module was judged as being equivalent to sustainability
4 or more	• Fine Art • Landscape Design • Surveying • Education (PGCE) • Environmental Science • Geography	In Fine Art, all course areas 'have the possibility of being sustainability courses'; in Surveying sustainability was threaded into several modules; and in Education, there was potential to teach sustainability at secondary school level, in many modules; sustainability within Environmental Science and Geography is well evidenced
2-3 modules	• Interior Design • Product and Furniture Design • Marketing • Education (PGCE) • Civil Engineering • Geographical Information Systems (GIS) • Life Sciences (Radioecology)	Mostly woven into courses. A number of modules within the primary teaching curriculum for Geography include sustainability. In Civil Engineering 2-3 modules focused on sustainability. This is at variance with another interviewee's claim that in the same subject area 'all modules' included sustainability. In several of these subject areas it was evident that sustainability did not form the core of the modules, but that it was contextualised within modules having other principal subject areas
1 module	• Mathematics • Architecture • 3-D Design • Chemistry • Music • Economics • English Literature • Pre-Registration / Post-Registration Nursing	Mathematics –too technical a module for dealing with the 'practicalities' of sustainability, but subject area had occasionally been applied to resource-saving issues in the past. A small part of Pre / Post- Registration nursing related to infection control and disposal of contaminated equipment

What of the subject areas which excluded sustainability? Some academics are not yet convinced that sustainability themes can be successfully introduced into their disciplines due either to the traditional subject matter or the reductionist tendencies in the discipline. The challenge remains. Evidence from the survey affirms the potential for embedding core sustainability concerns in: English linguistics/culture, French, History, Law, Mechanical Engineering/materials stress, Mechanical Engineering /aerospace, Midwifery, Operations Management, Politics and Psychology.

6.2 Sustainability in Assessment Regimes

The five criteria for sustainability outlined in Section 1 (developed from Shriberg (2002)) were mapped against assessment strategies within programmes claiming a sustainability content. (An explanation of the five sustainability criteria is given in Table 10.) Results indicate that 21% of written assignments were presented as sustainability topics, and that 25% of dissertations/ projects submitted related to sustainability themes (Table 11).

Table 10 Explanation of assignment categories (based on Shriberg, 2002)

Category	Explanation
(1) None	
(2) Environmental –not comprehensive	Analysis of change or impact on, or in, physical or social environments, but with minimal ecosystem links yet made, or links with related environmental subject areas. Often, the link is to legislation and/or public policy or administration only
(3) Environmental – ecosystemic or applied / comprehensive	Either: (i) clear links into the broader ecosystem are made of the benefits/disbenefits of the trends identified, or (ii) a clear environmental context is given for the topic set
(4) Sustainability –not comprehensive	The term sustainability and/or Local Agenda 21 is generally used, but no specific references are made to one of: (i) *'triple bottom line'* –environmental, social and economic effects and their integration (ii) climate change (iii) biodiversity (iv) environmental effects on society (v) intergenerational equity / equality or (vi) the environmental politics connected with the issue This would include the social and economic consequences and considerations of intergenerational equality (Section 1)
(5) Sustainability – comprehensive	The term sustainability and/or Local Agenda 21 is used, and one of the above (items (a) – (f)) is either specifically mentioned, or included. This category begins to approach the full definition as given in Section 1

Table 11 Sustainability and assessment practice in courses

Category	Sustainability written assignments set		Sustainability dissertations submitted	
	No	**%**	**No**	**%**
(1) None	17	30	16	29
(2) Environmental –not comprehensive	11	20	8	14
(3) Environmental – ecosystemic or applied / comprehensive	6	11	3	5
(4) Sustainability –not comprehensive	11	18	12	21
(5) Sustainability – comprehensive	12	21	14	25
Ambiguous	-	-	3	5
Total	**56**	**100**	**56**	**100**

Based on 56 respondents

Careful assessment of titles set for assignments confirms that some academic staff have focused on ‘eco-efficiency’ (Shriberg, 2002) and not true sustainability. Although such titles may have considered aspects of materials utilisation, environmental performance and regulatory compliance, they have often neglected the close combination of environment, society and economy, and temporal considerations (Figure 1). At the other end of the spectrum, assignments have focussed on administrative or social concerns, and even aspects of the built or rural environment, but have not engaged with the environmental agenda of sustainability. Furthermore, there remains a wide range of subject areas for which sustainability-orientated dissertations have not been presented.

7. Interdisciplinary Working

7.1 Barriers to interdisciplinary working

Interdisciplinary working presents both a challenge and opportunity for course design and delivery. Reactions were mixed: 42% of those interviewed saw no problem with the further development of sustainable curricula; in contrast, 44% identified problems connected with time-tables, cross-Faculty and cross-School working, and registered concerns over budgetary allocations (Table 12). These academic staff based their concerns on practical experience of pedagogy within a university setting.

Table 12 Barriers to interdisciplinary working

Barriers identified	**No. of comments**
Barrier:	
Timetabling problems and time constraints	8
Cultural, social and physical nature of the University inhibit networking between Faculties and Schools	6
Financial competition for students between Faculties inhibits interdisciplinary working.	4
Inhibition towards interdisciplinary working is due to: a) pride in subject areas; b) modesty about personal abilities to understand and adopt sustainability	2
Simple affirmative: 'yes' there are barriers	2
Administrative / structural problems are key, e.g. problems in aligning modules between Faculties / Schools; failure to complete particular projects (e.g. the development of interdisciplinary sustainability courses); to relate senior/junior staff effectively in the development of sustainability	3
Would not see interdisciplinary working as a way to foster sustainability.	2
	27 (44%)
No Barriers:	
Very keen on interdisciplinary working, sustainability becomes a bridge between Faculties. It is encouraged by the physical proximity of staff to each other within the institution	9
No barrier(s) perceived	13
Cannot answer, one way or the other	4
	26 (42%)
Other:	**9 (14%)**
Total	**62 (100%)**

Based on 56 respondents. Some interviewees responded with more than one comment.

7.2 Development of sustainability-focused curricula

Academic staff were invited to identify and discuss barriers to increasing tuition in sustainability. Two-thirds of academic staff identified 5 main *barriers* to the inclusion of more sustainability-related teaching in the curriculum: existing curriculum overload (16%); perceived irrelevance of sustainability issues to the focus of the curriculum (16%); benchmark

requirements of accreditation bodies (12%); lack of immediate staff expertise (11%); anticipated irrelevance by students/inability of students to grasp issues (10%) (Table 13). A range of other reasons were given by those who wished to draw attention to issues arising from the lack of an institutional commitment, low levels of staff awareness and possible confusion over sustainability and its introduction into curricula, and budgetary concerns arising from the movement towards further cross-disciplinary course development.

With the exception of the weighting attached to accreditation requirements, these proportions are broadly consistent with those reported by Jucker (2002) in a small, but European-wide, study. To enable cross-comparison, results for barriers have been converted to percentages.

Table 13 Barriers to increasing sustainability tuition

	Kingston survey	**Jucker (2002)**
No. of respondents	**56**	**10**
Total barrier score*	**114**	**30**
Barriers	**%**	**%**
Perceived irrelevance by staff and / or awkward fit with subject area	16	13
Curriculum too crowded already and lack of time to update courses	16	10
Internal accreditation, benchmarks, and/or requirements of professional associations	12	n/a
Lack of staff expertise and the need to acquire new knowledge	11	30
Perceived irrelevance by students and/or inability of students to grasp the issues	10	10
Lack of institutional drive and commitment	4	7
Lack of staff awareness	4	n/a
Financial restrictions	3	10
Confusion over what needs to be taught	3	3
Lack of market for students	3	n/a
Lack of relevant course examples	2	n/a
Reality of future career conflicts with sustainability teaching	2	n/a
Lack of perception of major environmental problems	2	n/a
Lack of academic rigour/misunderstanding	1	10
Other barriers/reasons for rejection/concern	8	7
No barriers identified	3	0
Total:	**100**	**100**

*Each respondent was permitted to cite more than one barrier; percentages are based on barrier scores.

Notwithstanding these barriers, it is significant that 93% of respondents were keen to establish practical communication (including seminar series, internet exchanges, newsletter, further development of the sustainability intranet and website) to raise awareness and support sustainability education in cross-disciplinary areas (Figure 2).

7.3 Proposed solutions

Solutions proposed to overcome these barriers included: further empowerment of course teams (21%); the encouragement of cross-Faculty, cross-School and cross-disciplinary initiatives in module and course design (21%); further engagement of tutors and students in the design and delivery of sustainability-focused modules (20%); building on student interest and commitment (15%); promoting an 'inclusive' approach to staff development in sustainability education(11%); improved and directed communication (5%); and resolving issues of course structure, including the resource base and course review and validation processes (5%) (Table 14).

Table 14 Strategies proposed to overcome barriers

Main strategy	Sub-theme expressed by staff	No. of comments
Fundamental/ Political	People having power over course design need to be lobbied	6
	Sustainability has to be part of everybody's thinking: there must be a cultural shift	5
	Keep emphasising the importance and relevance of sustainability: it is a subject of the future not the past	2
		13 (21%)
Practical	There is too much on the 'big and grand', concentrate on the small and practical	3
	Introduce via practical resource-saving issues, or develop 'applied' modules	2
	The modular system must be made to work and collaboration between schools should be encouraged	2
	Perceptions that courses can only be changed once every 5 years must be challenged. Small changes can be made every year. Sustainability can be included via programme re-validation	2
	Charging for resource-use will encourage better thinking amongst students	1
	The framework and ways in which modules are delivered requires radical alteration	1
	Economic incentives to recycle must be given	1
	Sustainability should not be a 'bolt on': it should be integral to the subject	1
		13 (21%)
Delivery	Provide material which is adjusted or contextualised to current course content	5
	Inform people about sustainability courses already existing elsewhere	4
	Care is necessary to ensure that students are not simply taught sustainability: they must be involved in course delivery too	3
		12 (20%)
Students	Market investigations are needed to ascertain whether sustainability modules or courses can attract students	4
	Make students aware of their power, so that they can help deliver sustainability	3
	Students need to be receptive to the underlying philosophy of sustainability	2
		9 (15%)
Academics	Deal only with motivated staff: this will aid the development of successful 'demonstration courses'	2
	Possibilities of staff development relevant to sustainability (e.g. short courses, seminars, etc.) need to be pursued to increase the likelihood of sustainability coming in to various subject areas	2
	By being more creative, or by clever 'lateral thinking', sustainability can be included even in unlikely subject areas	1
	Be aware that some academics will be too reductionist to deal with sustainability	1
	The cultural exclusion of the social dimension of my subject area is regrettable: it excludes the possibility of considering sustainability. This must be overcome	1
		7 (11%)
Communication	Personal networking will be more effective than a newsletter and/or the intranet	2
	Bring in external specialists in sustainability	1
		3 (5%)
Future ideals	Courses should be re-written in relation to the environment, rather than in relation to increasing student numbers and diminishing resources	1
	Courses should be longer to include sustainability and ensure technical adequacy	1
	Deregulate courses from the validation constraints imposed by external bodies	1
		3 (5%)
Other	The word sustainability is a problem: this needs to be resolved	1
		1 (2%)
	Total responses	**61 (100%)**

Based on 56 respondents. More than one proposal is permitted from each respondent.

7.4 The university community

Staff were invited to suggest ways in which the University community might become more fully engaged in sustainability concerns. Responses are assigned to four categories of individual: 'All Staff', 'Students', 'Non-academic staff', and 'Academic staff' in Table 15.

Table 15 Perceptions about the capability of the University community as a whole to enact sustainability

Group	Actions proposed	No. of respondents
All staff	All staff should be involved in devising solutions. Everybody needs to have a social conscience in relation to sustainability; everyone should know about the effects of environmental calamities	6
Students	There were contrasting perceptions that:	
	(i) students are preoccupied with living/livelihood and/or future vocation hence very apolitical	
	(ii) students are keen and motivated to act either verbally or practically on environmental issues	12
	(iii) whilst keen, students could become disheartened by:	4
	(i) the perceived failure to incorporate findings of BSc / BA / MSc / MA theses into practical aspects of university environmental management	
	(ii) the failure of *ad hoc* materials recycling initiatives; and	
	(iii) the lack of a communication channel where their views could be articulated [N.B. these can be directly related to the lack of an in-house EMS*]	5
	(iv) Students are not:	
	(i) being 'granted permission' to be radical in thinking about sustainability; and	
	(ii) empowered to discuss sustainability, and/or recycling initiatives, and being able to influence University buying policy	3 3
	(v) Miscellaneous comments:	8
Non-academic staff	There is a significant role for non-academic staff, but there is a feeling that the hierarchical structure of the university may inhibit their involvement	1
	They can directly complement and encourage the fostering of sustainable curricula	1
	They might be able to influence Faculty purchasing policy and/or initiate recycling schemes	2
	Examples of people enacting practical sustainability measures are what is needed; there is tremendous potential to initiate this in the University	2
Academic staff	Undue tutor influence needs to be reduced and student involvement fostered as a way of delivering sustainability education	2
	More cross-disciplinary seminars, and staff development time, is needed, to foster sustainability tuition	2
	Some tutors will be too reductionist in their thinking to ever take on sustainability	1
	Sustainability provides a means of re-conceptualising old and familiar problems	1

Based on 56 respondents. *EMS: Environmental Management System.

Miscellaneous comments, which accounted for a score of 8, including the following: recognition that students can and do drive curriculum change, and might even be able to influence Faculty buying policy; that a student pressure group would be an effective driver for the foregoing; that students could be persuaded towards the value of sustainability by becoming involved in practical initiatives around the University based on their curricula. However, respondents also commented that student awareness needed increasing regarding the nature of claims of 'environmental friendliness' put across by companies.

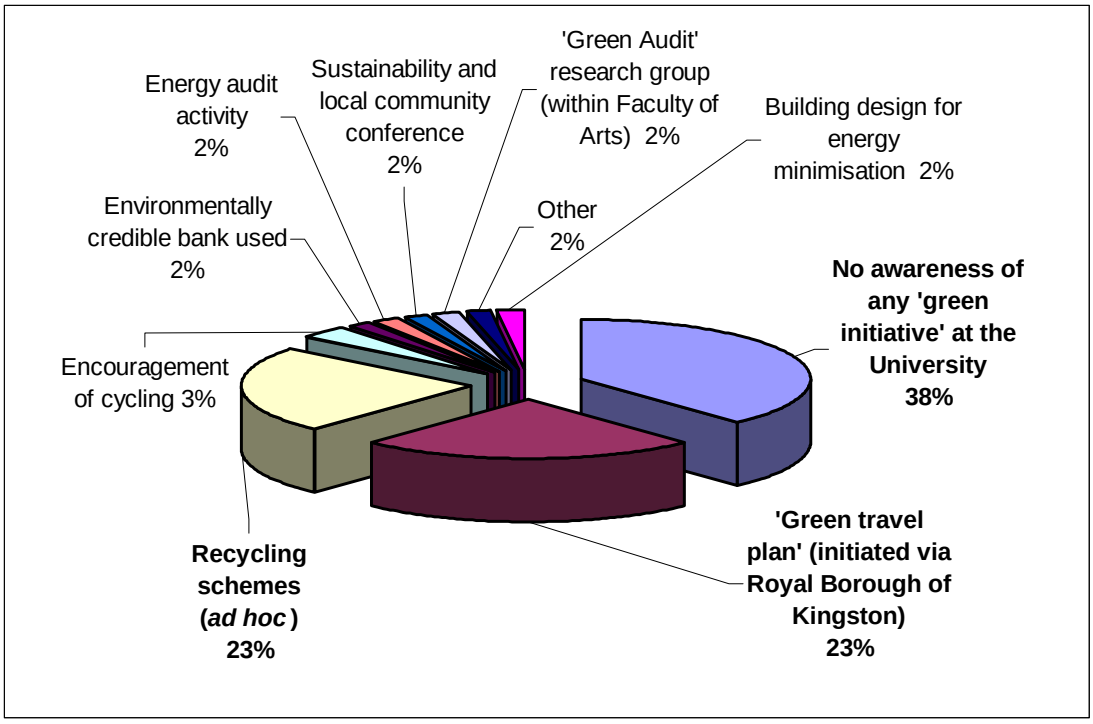
This summary suggests that methods for awakening and stimulating student interest will repay dividends. Simon (2002) says: *"… students learn by doing something … and learning outcomes emerge from a whole set of learning experiences that start with the students' knowledge and experience and value it"*. At the extra-curricular level, the argument for 'capacity building' and empowering of students is supported by respondents, especially in practical areas of institutional management and organisation.

8. Management of the University Environment

8.1 Position of the University

When questioned on knowledge of University initiatives towards sustainability, it is significant that 38% claimed that they were unaware of any 'green initiatives' at the University (Figure 3). However, 23% had knowledge of *ad hoc* recycling schemes (mainly started by members of staff) and 23% knew about the 'Green Travel Plan'. Furthermore, a small number of staff were able to identify particular audits, conferences and supporting initiatives.

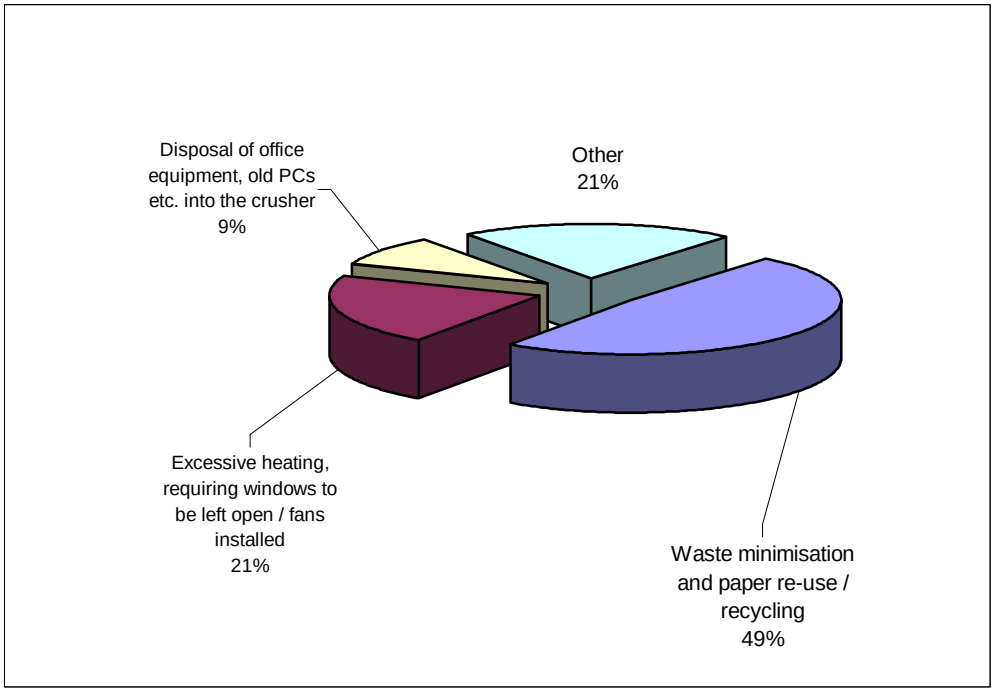
Figure 3 Initiatives towards sustainability



Based on 55 respondents

Thirty respondents expressed strong feelings against the apparent reluctance of the University to adopt even basic and low-cost measures towards sustainability. Figure 4 shows the importance attached to the absence of a policy for recycling paper or waste minimisation (49%); excessive heating of buildings combined with the absence of thermostatic controls (21%) and disposal of computer and related equipment (9%). The 'Other' category in Figure 4 is made up of seven equivalent proportions, each of 3%: visual impact of buildings, the questionable potability of water supply, the disappearance of green open spaces, awareness of former paper recycling schemes, the disposal of graphics materials, awareness of air-conditioning units left running over the weekend and finally the perception that the University was 'burning money'. Some staff compared Kingston unfavourably against other universities where they had worked, and where environmental management was assigned a higher priority (Table 2). These findings reflect the absence of an environmental management system (e.g. IS014001, Eco-Management and Audit Scheme (EMAS)), even in 'shadow' form.

Figure 4 Criticisms of University practices



Based on 30 respondents

8.2 Stakeholder relationships

For a business to achieve sustainability, it should recognise and value the unique contribution of each of its stakeholder groups. This is implicit within Local Agenda 21 and sustainability policy. However, stakeholder engagement is a much talked about, but poorly practised, management activity.

The curriculum survey indicates that many staff recognise the substantial physical, social and economic presence of Kingston University in the Kingston/South West London Region. They firmly believe that if the institution were to adopt sustainable practices it would have a beneficial impact on environments and life-styles in the wider region.

9. Performance Against HEFCE (2002) and DfES (2003) Criteria

9.1 Current assessment

The four key sustainability objectives derived from HEFCE (2002) and DfES (2003) are shown in Table 16.

Table 16 Sustainability objectives for universities derived from HEFCE (2002) and DfES (2003)

Key Sustainability Objective	Derived from: Educational Policy Objective	Reference(s)
1. Curriculum change for sustainability	(Obj. 1) *"All learners will develop the skills, knowledge and value base to be active citizens in creating a more sustainable society"* Benchmark 7.2 Promoting sustainability through the curriculum	DfES (2003): *Objective 1.* HEFCE (2002): Benchmark 7.2
2. Implementation of Sustainability Management Systems (SMSs) and Environmental Management Systems (EMSs)	(Obj. 2) *"We will pursue the highest standards of environmental management across all properties owned and managed by the Department and its associated bodies."* (Obj. 3) *"We will encourage and support all publicly-funded educational establishments to help them operate to the highest environmental standards"* Benchmark 7.3 Performance against environmental management systems	DfES (2003): *Objectives 2 and 3.* HEFCE (2002) Benchmark 7.3.
3. Senior management commitment towards sustainability	Benchmark 7.1 Sustainability at the heart of HEI governance [DfES objectives 2 and 3 are relevant since 'Senior Management Commitment' forms the formal start of a SMS* or EMS^{+}.]	HEFCE (2002) Benchmark 7.1. DfES (2003): *Objectives 2 and 3.*
4. Stakeholder management (communities)	(Obj. 4) *"We will make effective links between education and sustainable development to build capacity within local communities"*	DfES (2003): *Objective 4.*

*SMS: Sustainability Management System. $^{+}$EMS: Environmental Management System.

Table 17 shows how these emerging educational requirements are consistent with the COPERNICUS Charter.

Table 17 Sustainability objectives of the COPERNICUS Charter

Key Sustainability Objective	COPERNICUS Charter Principle of Action
1. Senior management commitment towards sustainability	Principle of Action (PoA) 1**:** *"Universities shall demonstrate real commitment to the principle and practice of environmental protection and sustainable development within the academic milieu"*
2. Curriculum change for sustainability, and the fostering of environmentally literate staff.	PoA 2*: "Universities shall … develop the capacities of the academic staff to teach environmental literacy"* PoA 3**:** *"… shall provide education, training and encouragement to their employees on environmental issues."* PoA 4: *"… shall set up environmental education programmes involving both teachers and researchers as well as students … irrespective of their field of study"*
3. Implementation of Sustainability Management Systems (SMSs) and Environmental Management Systems (EMSs)	PoA 6: *"… They [universities] should also be prepared to participate in environmental audits"*
4. Networking, 'capacity building'[10] and stakeholder management	PoA 6: *"Universities shall support efforts to fill in* [gaps in knowledge] *for students, professionals, decision-makers and the general public by … organizing public lectures, and establishing training programmes."* PoA 7: *"… shall promote interdisciplinary networks … at the local, regional and international levels …"*

Kingston University signed the *COPERNICUS University Charter for Sustainable Development* in 1998. Evidence from this survey suggests that Kingston University would qualify for a score of 2 on the 5-point HEFCE scale for promoting sustainability education through the curriculum (where 5 is the maximum and preferred target score). Although some progress has been made towards sustainable education, this has occurred in an *ad hoc* fashion across degree programmes. To achieve a higher score on the HEFCE (2002) curriculum benchmark, and to conform to DfES (2003) objectives, academic staff need to explore and realise more comprehensively the holistic potential of sustainability education through a more co-ordinated approach to curriculum design and delivery. This engagement will also require support and direction from University management committed to a Sustainable Management System (SMS) or Environmental Management System (EMS) dealing with the University's estate which would stimulate, interact with and enhance pedagogic changes.

HEFCE (2002) has set a target for 100% of courses to include sustainability tuition. DfES (2003) report that an assessment of changes towards sustainability will feature in the University Grant Settlement process. The DfES targets are intended to be achieved over the next 1-2 years. Based on this curriculum survey, Section 10 proposes actions to progress the global requirement for sustainable education at Kingston University. These focus on delivering attitudinal change in students in addition to teaching core analytical skills within the context of benchmarking statements and institutional processes.

[10] 'Capacity-building' is a term meaning to increase peoples' knowledge and capacity so that they are sufficiently informed to make intelligent decisions within the field of sustainability.

9.2 Improvements to scores

Staff interviewed presented arguments for five developments to align Kingston University more closely with HEFCE (2002) and DfES(2003) targets for the curriculum in sustainable education:

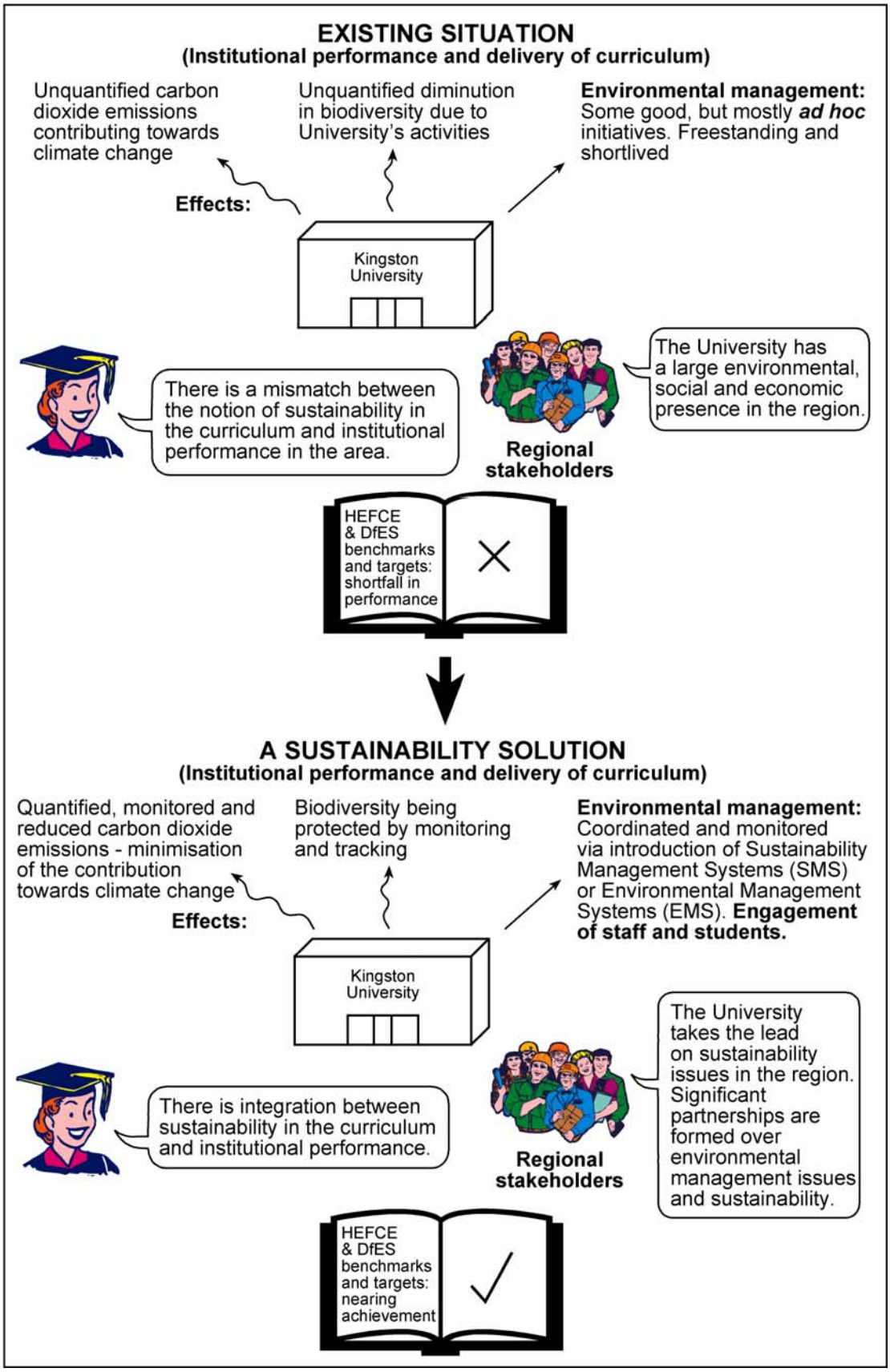
(i) the adoption of sustainability as a policy within the institution
(ii) the promotion and contextualisation of practical initiatives throughout the University
(iii) the propagation of core sustainability concerns to 'non-adopting' discipline areas
(iv) market research to determine impact on student demand
(v) further liaison with motivated and / or receptive staff to promote the spread of good practice and stimulate areas of cross-disciplinary teaching

Table 18 builds on that commitment to sustainability and the core concepts introduced in Section 1. It presents an appreciation of staff perceptions and suggests a scenario where Kingston University is more closely aligned with the precepts of HEFCE (2002) and DfES (2003) benchmarks and targets. It retains a focus on curriculum change, but situates that development within a framework of the sustainable institution in its regional setting. Such a transformation is demonstrated diagrammatically as Figure 5.

Table 18 Benefits from the joint implementation of a Sustainability Management System (SMS) or Environmental Management System (EMS) and sustainability education

Theme	Existing situation *(as evaluated from interviewees' responses)*	Proposed situation *SMS/EMS in place in 'shadow' form; sustainable curricula being introduced.*
Policy and Legislation	• Kingston University does not conform to HEFCE high level sustainability benchmarks	• Kingston University now approaching high level HEFCE (2002) benchmarks
	• Institution relatively unresponsive to emerging DfES (2003) agenda	• Institution meeting DfES agenda in pro-active way, ahead of other competitor universities
	• Kingston University largely *re-active* regarding sustainability legislation	• Kingston University *pro-active* and 'ahead of the game' regarding sustainability legislation
Sustainable curricula	• Sporadic, c. 20-25% of module and course areas embrace sustainability criteria	• More extensive range of sustainability curricula in place. Students and tutors stimulated by curriculum and engagement in SMS/EMS
Student dissertations/ projects	• Some University-orientated 'sustainability' dissertations/projects produced, but no practical impact on University management practices	• Student dissertations and practical initiatives now feeding directly into SMS/EMS management groups. Ideas adopted when feasible
Staff perceptions	• University is not compliant with main thrusts of sustainability. Past employers —other universities— often regarded by respondents as being more fully engaged with environmental management	• the University is a leading HE institution with regard to sustainability in curricula and management. University is receptive to staff and student initiatives for saving money and minimising the use of resources
	• Concerns from academic staff teaching 'sustainable curricula' within an 'unsustainable' institution	• Staff are greatly encouraged as they find synergy between their 'sustainable' courses and sustainable practices embraced by the University
Student perceptions	• Concerns regarding image and environmental reputation on student recruitment	• Competitive edge in student recruitment maintained by strong environmental reputation
Practical environmental initiatives	• These exist, but are not co-ordinated. Key individuals may leave the University	• Co-ordinated and approved programmes of project work involving all staff within SMS/EMS guidelines
Cost-savings	• Relatively modest progress	• Benefit-cost analysis for projects following Environmental Review (this is a part of the SMS/EMS). Savings re-cycled into SMS/EMS
	• Unlike capital investment in new buildings, extremely short payback periods tend to be preferred for environmental management of 1-3 years. Some initiatives are not taken on, even with these payback times	• University is now factoring in longer payback periods, and integrating these with long-term strategies and forecasts for the whole university (see Dahle and Neumeyer, 2001, for 'short-termism' in environmental areas)
'Stakeholder' relationships	• Kingston University has a significant (but presently unquantified) economic, social and environmental presence in S.W. London and Surrey	• Kingston University, via SMS/EMS and supply chain, is now the lead organisation forming partnerships for enhanced sustainability education and environmental management regionally

Figure 5 Transforming the institution and curricula towards sustainability



10. Recommendations

Based on the survey of University academic staff, and guided by the HEFCE (2002) advisory benchmarks and DfES (2003) action plans related specifically to promoting sustainability through the curriculum, the following recommendations for wider consultation and action are proposed:

Disseminate the findings of the curriculum survey and imperatives of sustainable education with regard to HEFCE and DfES benchmarks and targets:

(i) staff training via staff induction programmes and a phased engagement with PP4SD (Professional Partnerships For Sustainable Development)
(ii) capacity building through enhanced levels of staff engagement in sustainable education by providing seminar series, the electronic publication of a sustainability newsletter, and updating of the University website
(iii) introducing intra- and extra-curricular workshops for students
(iv) producing a concise booklet regarding sustainability and university teaching, for circulation among university staff
(v) provide short briefings to new staff during their induction process

Develop practical initiatives that demonstrate a University commitment to sustainability education:

(vi) adopt a University-wide SMS[11] or EMS[12] to provide a clear signal of intention and to create an institutional climate conducive to further curriculum change
(vii) consult with regard to sustainability objectives to ensure 'inclusivity' and the engagement of staff, students and other groups in the University community
(viii) set up networks and 'conversational partnerships' to contextualise sustainable education in cross-disciplinary degree programmes

Establish a University-wide management system to set and drive the sustainability agenda towards DfES and HEFCE goals:

(ix) co-ordinate sustainability education as a Key Skill with quality assurance processes and course review and validation processes
(x) align sustainability education with the University Corporate Plan
(xi) extend sustainability education in disciplinary and cross-disciplinary areas
(xii) evaluate and incorporate the Kingston University Steering Group for Sustainability and the post of Coordinator for Sustainability post presently supported by the cross-Faculty component of the HR budget

[11] SMS: Sustainability Management System
[12] EMS: Environmental Management System

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Appendix A: Interview Schedule

A total of 56 academics and 4 senior university staff were interviewed using the attached schedule of questions. These provided a basis for information collection and discussions of issues connected with discipline perspectives and teaching practices.

Part one: sustainability content	
(1) Which initiatives (or modules, where applicable) within the course would you describe as being about sustainability?	
(2) Can you give examples of essays or assignments set which address sustainability themes / issues?	
(3) Can you give examples of student dissertations in which sustainability features?	
(4) Can you give illustrations regarding sustainability from reading in your discipline area?	
(5) Would you welcome a short (page of A4) quarterly briefing re: sustainability at Kingston University?	
(6) What do you think should be included in such a briefing?	
(7) Are there professional associations concerned with validating your course, and do their considerations include environmental and/or sustainability themes / issues?	
Part two: barriers	
(8) What do you consider to be the most important barriers to the inclusion of sustainability within your course? *Prompts which were supplied to interviewees are listed below, and are taken from Jucker (2002):*	
-Lack of staff expertise -Perceived irrelevance by staff -Perceived irrelevance by students -Insufficient time to update courses -Perceived lack of academic rigour -Financial restrictions -Institutional structure -Confusion over what needs to be taught	*Additional prompts emerging during the interviews:* -Benchmarking requirements of the existing course -Lack of inspiring examples (e.g. of sustainability teaching in this area) which might be adopted
(9) How do you think such difficulties should be overcome?	
(10) What should be the role of: students / non-academic staff / academic staff	
(11) Have you felt the need for inter-disciplinary cooperation in your coursework, to foster sustainability work? Are there barriers to this? How might these be overcome?	
Part three: broader sustainability issues	
(12) Are you aware of any Kingston University (KU) greening initiatives? (For example, greening of supply chain, grounds, waste minimisation, energy, financial investment, etc.)	
(13) How might Kingston University's impact on Kingston Borough Council or Surrey County Council be assessed, methodologically: can you give any suggestions?	
(14) Does Kingston University conduct research or consultancy in the area of sustainability?	
(15) Are you in touch with any ex-students (alumni) working within sustainable industries? Can you give some details?	
(16) Do you think Kingston University is in touch with the local private sector concerning sustainability in business?	
(17) Do you think Kingston University is in touch with local people and/or community groups concerning sustainability?	
Part four: sustainability as a concept	
(18) Have you heard of the phrase 'development that meets the needs of the present without compromising the abilities of future generations to meet their own needs'?	
(19) intergenerational equity?	
(20) the Kyoto Protocol?	
(21) the Precautionary Principle?	
(22) the Convention on Biodiversity?	
(23) the Convention to Combat Desertification?	
(24) the Framework Convention on Climate Change?	
Have you got any additional comments you would like to make?	