

Appendix G

Drivers for sustainable estates management in the FHE sector

This paper has been prepared by David Somervell (Energy and Environmental Manager, University of Edinburgh). It has been abridged from the report 'Sustainable Construction Procurement: A Guide to delivering environmentally responsible projects' (Construction Industry Research and Information Association, December 2001).

Introduction

There is a growing realisation and acceptance throughout our society that we need to be more responsible and concerned about our impact on the environment. This is reflected both in the growing national and EU legislation, and in the policies of national and local Government. These trends are augmented by the recent broadening of the idea of responsibility to embrace social, ethical and economic issues along with environmental under the umbrella concepts of Sustainability and Sustainable Development.

The building management and construction industry has been singled out as having perhaps the most significant impact across the EU. It accounts for around half of all energy used, about half of all landfill, has considerable potential to pollute our rivers and generate unacceptable noise and emissions to the air as well as generating a lot of traffic. One driver is the need to help building owners and their building maintenance and construction teams reduce the impact associated with both constructing and operating buildings.

There is now growing evidence of a second, equally strong driver for change. Many of those engaged in construction, and especially the clients who commission buildings, are finding that reducing environmental impact and embracing the broader issues of sustainability make good business sense too. Lower energy use means lower running costs; reduced waste means lower capital cost, lower transport costs and less Landfill Tax. All stakeholders are demanding that the public as well as the private sector improve their practices.

Sustainable development – embracing social and economic issues as well as environmental – applies at the political and macro-economic level to communities, cities, regions and even whole countries. When sustainability is addressed on an individual project the actual impact on society, the economy and the environment are clearly small, but when aggregated over many such projects is significant. The message is, therefore, 'think global – act local'. The idea of sustainability is already infiltrating its way into many aspects of life which are far from political – planning legislation, university curricula in virtually all faculties, and design, manufacturing and management guidance in many industries.

Drivers for change in FHE estate management

1. The building management and construction industry

There is now wide recognition that the building management and construction industry has a vital contribution to make to sustainable development. Sustainable development is about achieving economic and social objectives whilst minimising adverse environmental impacts. The industry has a major role to play in all three respects.

Economically – the building management and construction is a major sector of the United Kingdom economy and a significant source of employment. The Government's strategy for more sustainable construction – 'Building a better quality of life – a strategy for more sustainable construction' (Department of the Environment, Transport and the Regions, 2000) – stated that construction, building materials and associated professional services together account for some 10% of Gross Domestic Product and provide employment for around 1.5 million people.

The Egan Report – ‘Rethinking construction’ (Construction Research and Innovation Strategy Panel, 2000) - identified critical internal problems within the industry, categorising the sector as a whole as seriously under-achieving, delivering a low and unreliable rate of profitability and a lack of investment in capital, research and development and training. Too many clients are seen as indiscriminating, equating price with cost and selecting designers and constructors almost exclusively on the basis of tendered price. The report also discovered deep and growing dissatisfaction with construction among both private and public sector clients.

Socially – the performance of the industry determines the quality of our built environment and our access to services and recreation. Construction is needed to promote healthy living and socially cohesive communities. Societal expectations generally are changing, specifically in relation to lifestyles and to workplace practices, and the construction industry needs to take account of these changes.

The industry has an ageing workforce and it needs to be able to attract and retain the most able people. It has recognised the need to improve its record in employing women, ethnic minorities and in health and safety.

Environmentally – the construction, use, maintenance and demolition of the infrastructure and buildings consume energy and material resources and generate waste on a massive scale. As a consequence, construction is a major contributor to climate change, resource depletion and pollution at a global level. For example:

- in 1996, the total output of construction was £90 billion
- over 90% of non-energy minerals extracted in Great Britain are used to supply the construction industry with materials
- the annual net change from rural to urban land use is nearly 6,500 hectares, and some 260 million tonnes of minerals are extracted for use as aggregates and raw material for construction products.

Poor design and planning also result in wasted time, money and reduced profits.

2. Climate change

Emissions of greenhouse gases are the prime influence on global climate. The principal source of greenhouse gases is the burning of fossil fuels. United Kingdom targets to reduce greenhouse gas emissions by 12% of 1990 levels have been set under the international Kyoto Protocol and EU agreements. The UK government has a target of 20% reduction in CO₂ by 2010. Recent reports, including ‘Energy- the changing climate’ (Royal Commission on Environmental Pollution, 2000), have argued that higher targets (of up to 60% reduction in UK greenhouse gases by 2050) still need to be set if environmental catastrophe caused by global climate change is to be avoided.

The increased frequency and intensity of extreme weather events – most specifically flooding and windstorms – are now seen as tangible effects of long-term climate change. Unsustainable planning practices such as developing on flood plains, with inevitable insurance implications, have focused unprecedented public attention on the links between construction and climate change.

Building management and construction is a major contributor to greenhouse gas emissions. Buildings account for more than 330 million tonnes a year of the carbon dioxide released in the UK. Altogether about 50% of our carbon emissions are due to the energy we use for heating, cooling and lighting our buildings. A further 22% of CO₂ releases are accounted for by the energy used in transporting people and goods between buildings. The UK target is to reduce the 1990 CO₂ emission levels by 20% by 2010. It is only a matter of time before all publicly funded organisations are required to make their contribution to this target.

3. Resource depletion and pollution

Every year, the building management and construction industry in the UK:

- consumes 6 tonnes of material per person
- 70 million tonnes of construction and demolition materials and soil end up as waste each year
- 13 million tonnes of the above figure comprise materials delivered to sites that are subsequently thrown away unused
- obtains less than 20% from secondary sources, of the 240 million tonnes of aggregate used.

It is the most frequent industrial polluter of air, water and land. Placed in a global context, building management and construction accounts for one third the world's wood harvest; two fifths of its material and energy usage; and one sixth of its fresh water withdrawals. Sites for construction are also major sources of noise and nuisance and may degrade wildlife habitats and biodiversity.

Water consumption in Britain has risen 70% over the past 30 years. About 30% of potable water could be saved by cost-effective means in buildings.

Key issues

The concept of sustainable development – which endeavours to balance economic, social and environmental factors – is high on the political agenda in the United Kingdom, placing major responsibilities as well as regulatory and fiscal pressures requirements on the building management and construction industry.

Reinforcing and complementing the essential message of the Egan Report – 'Rethinking construction' (Construction Research and Innovation Strategy Panel, 2000) – the Government's strategy for more sustainable construction ('Building a better quality of life – a strategy for more sustainable construction' (Department of the Environment, Transport and the Regions, 2000) focuses on the important contribution the building management and construction industry can make to the achievement of sustainable development by:

- being more competitive and adding longer-term value
- delivering buildings and structures that provide greater satisfaction, well-being and value to customers and users
- shaping patterns of development, including planning communities to reduce car use
- regenerating housing, particularly to revitalise town centres
- minimising its impact on the consumption of energy (especially carbon-based energy) and water
- minimising mineral extraction
- enhancing and better protecting the natural environment including the countryside
- respecting and treating its stakeholders more fairly
- providing training, through targeted schemes.

Many leading clients, most specifically the Government estate, are starting to demand better environmental and social performance from the construction supply chain. The Government's Construction Clients Panel, responsible for 40% of UK annual construction spend, has already established a programme and a timetable to deliver more sustainable construction in all Government procurement.

If the building management and construction industry under-performs from a sustainable development perspective, then the Government has made clear that increased regulatory controls are likely. Organisations that fail to respond will increasingly find their activities constrained and challenged by local objections and increasing requirements from planning and regulatory authorities. Increased risk of litigation and the threat of ever higher insurance costs – and the higher costs of borrowing – will not only impose financial penalties but lead to a loss of market position.

Planning and sustainable development

The principal mechanism by which government enacts policies on sustainable development and the built environment is through the planning system. Local authorities are required to have in place a Regional or Unitary Development Plan (UDP) that sets out their strategies for implementing government policies, against which all development is compared and judged. Generally all proposed construction must comply with these plans.

Environmental issues have been incorporated in UDPs for some time; nowadays sustainability too is addressed, either in a separate section of the UDP, or within other chapters, or both. It is thus increasingly likely that planning applications for all large new construction projects will need to address sustainability and environmental issues. The impact of a construction project on the local environment and community is assessed by means of an Environmental Impact Assessment and presented in an Environmental Statement which accompanies the planning application.

Local Authorities are now charged with monitoring their progress in implementing Government Policies on sustainability, and many are now devising and implementing their own performance indicators, both for their region as a whole and for construction in particular.

Case for sustainable construction & estate management

Whilst legislation and fiscal pressure will continue to be important drivers of better performance, the business case for sustainable construction and building management is becoming increasingly widely recognised. The long-term business benefits in managing the economic factors affecting business, and the environmental and social factors as well, will become ever more obvious as fiscal and regulatory drivers are introduced and as sustainability becomes a key competitiveness issue.

1. Reducing costs

The quantifiable cost savings possible through improved utilities management, leaner, more eco-efficient building design and construction, reduced waste and re-use of resources are considerable whilst the use of locally-sourced materials cuts transport costs reduces pollution.

Energy efficient designs substantially reduce lifetime costs, making property a more attractive and affordable resource for the sector. In terms of capital costs, there is evidence that sustainable construction does not inevitably have to cost more, even if the cost profile may be different from that of a conventional project.

2. Reducing risk and increasing productivity and staff motivation

Improved risk management and addressing of compliance issues can lead to reduced liability and a minimisation of the financial penalties and negative publicity associated with non-compliance. The use of locally sourced materials reduces supply-failure risks. Sustainable institutions will invest in an increased capacity to innovate, leading to improved efficiency and reduced waste which meet the diverse needs of occupants and the environment.

Well-designed and appropriately heated and lit buildings enhance productivity and increase employee motivation, in addition to improving the quality of the working environment of staff and students. Institutions

showing a ‘respect for people’ have a greater capacity to retain able staff, reducing recruitment, training costs and loss of institutional knowledge. They are also likely to recruit the most able staff.

3. Enhanced public relations and community liaison

Wider business benefits can arise from effective working with local communities. By building close relations with local communities considerable savings can be achieved during the planning process or mutually favourable working arrangements negotiated. By acquiring a licence to operate, costs arising from addressing protests and complaints can be minimised. On the other hand, poor sustainability performance – especially in an increasingly competitive market for students and research funds – imposes opportunity costs in terms of loss of confidence and competitiveness.

The responsible institution

A commitment to sustainability requires institutions to adopt responsible social, economic and environmental policies and practices. Responsible institutions need to be more aware of the issues, find mechanisms for becoming more resource efficient, and contribute towards a more sustainable way of life for all.

For many institutions this means making significant changes in the way they operate. Moving towards a more sustainable model will involve seven key transformations in the way organisations operate. The shifts that will be needed across the seven key aspects of business practice are shown in Table 1:

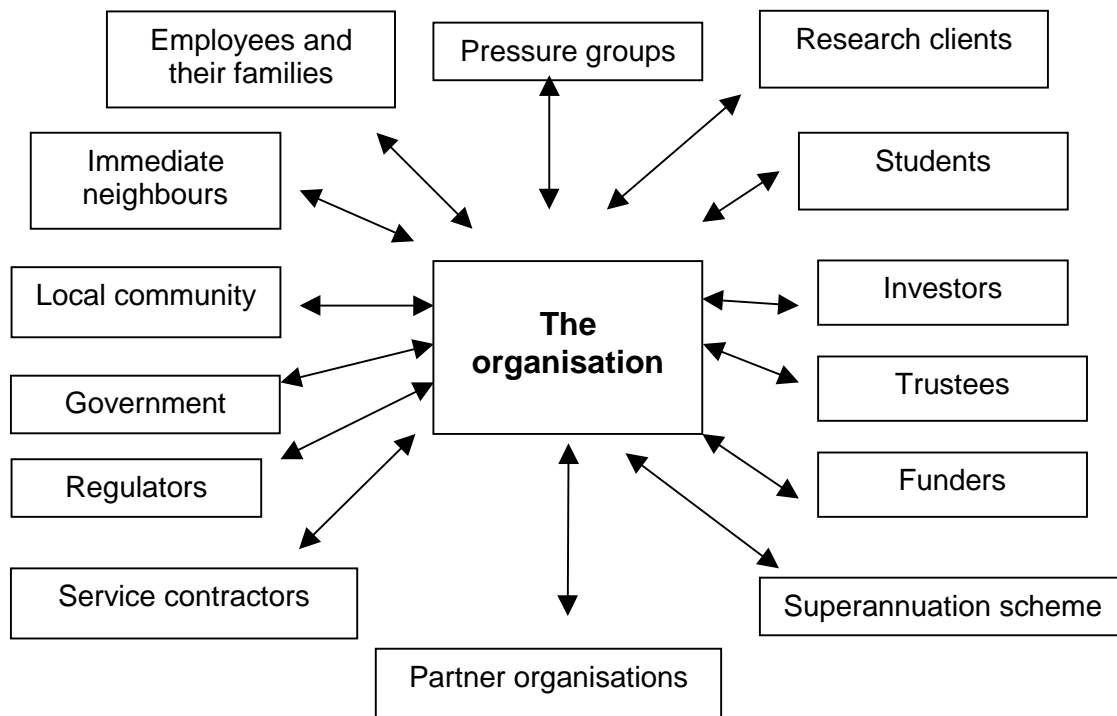
Table 1

Aspect of institution	From	To
Markets	Compliance	Competition
Values	Hard commercial	Softer, triple bottom line
Transparency	Closed	Open
Life cycle	Product	Function
	Point-of sale	Life time responsibility
Partnerships	Subversion	Symbiosis
Time	Short	Long
	Narrow	Wide
Corporate governance and stakeholder relationships	Exclusive	Inclusive

(Adapted from Cannibals with Forks by Elkington)

Stakeholders are defined as those people who are affected by – and affect – an organisation's activities. The typical stakeholders to whom a 'sustainable' organisation would need to demonstrate responsibility – through its hierarchy of policies, plans and reporting procedures – are detailed in Figure 1.

Figure 1

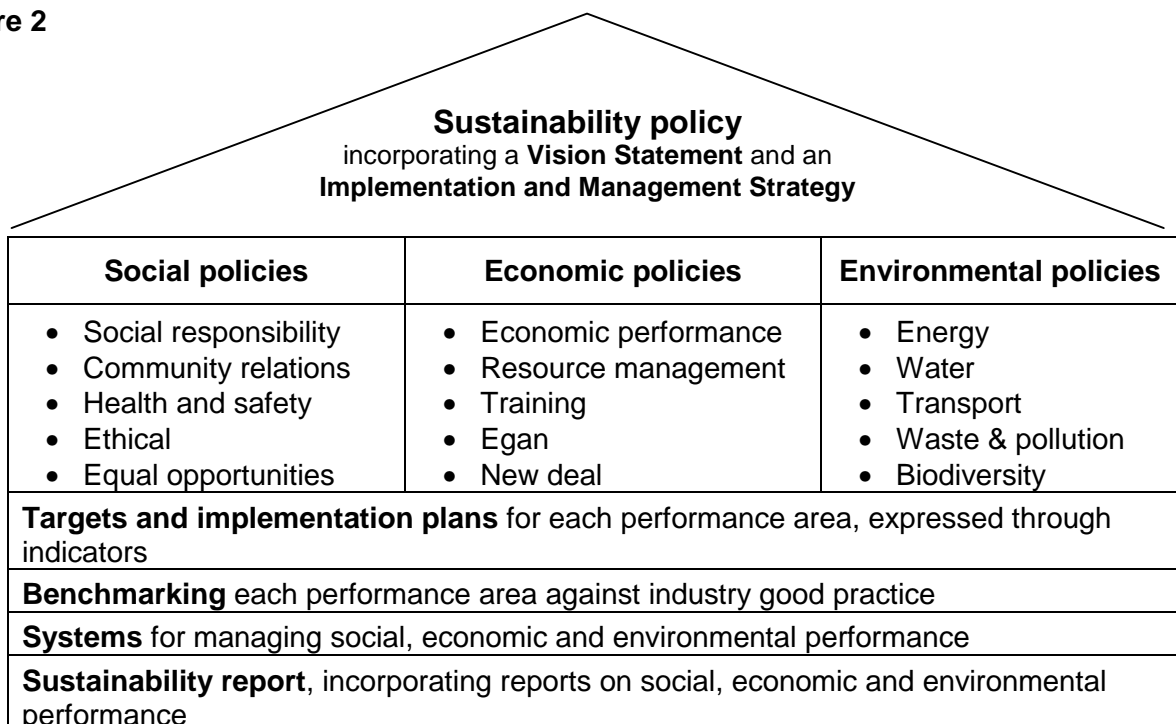


Institutional sustainability policies

The principal means by which a organisation can fulfil its commitment to sustainable development is to set down its vision in a sustainability policy and following an appropriate strategy for achieving it. This is best undertaken by subdividing the larger aims into a series of narrower ones.

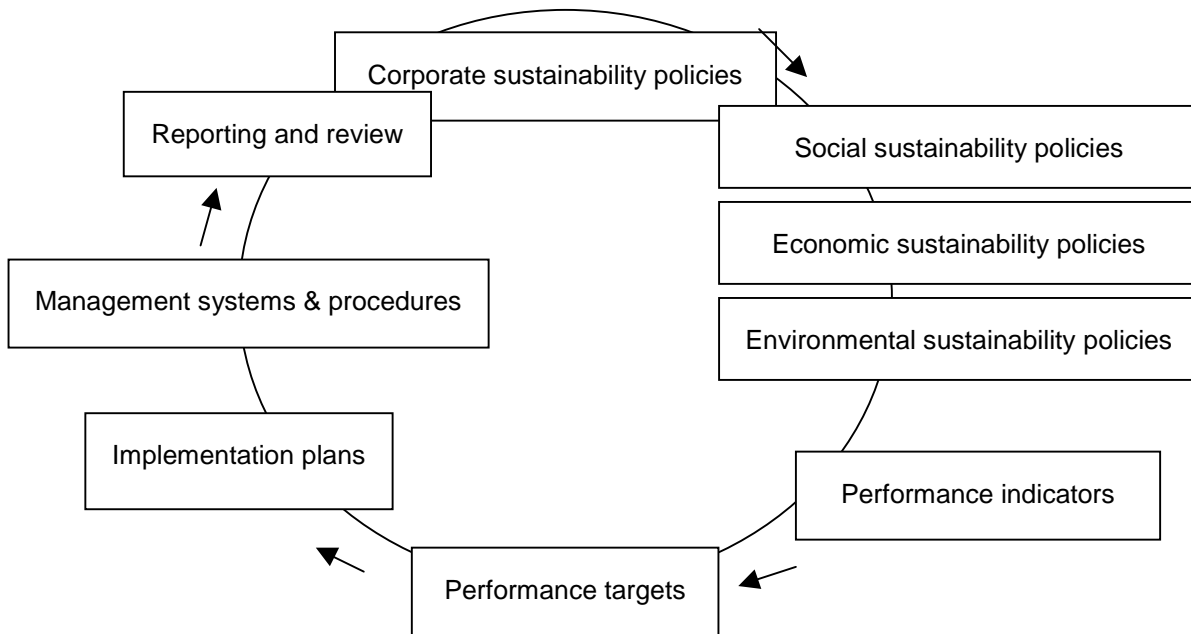
The components of an overall sustainability framework can be integrated as follows (Figure 2):

Figure 2



The sustainability performance management system (illustrated in Figure 2) is only effective if organised as a closed loop or cycle (see Figure 3) and implemented through action plans for each policy area (Figure 4).

Figure 3



This model is consistent with the management cycle advocated by the International Council for Local Environmental Initiatives (ICLEI, 1999) and with the procedures proposed as part of MACC2 – Making a Corporate Commitment. This Government-sponsored initiative is designed to promote top-level corporate commitment to sustainable business practice and to an improved environment (DETR, 2000).

1. Making a corporate commitment

MACC2 requires companies to commit to one or more of three issues: Greenhouse Gas emissions, Waste and Water. Organisations have the option of including improvement targets in other important areas such as Raw Materials Use, Emissions of Other Gases, a Green Travel Plan or actions to implement a Biodiversity Action Plan. The commitments made by an organisation need to reflect national targets.

The United Kingdom overall is working towards:

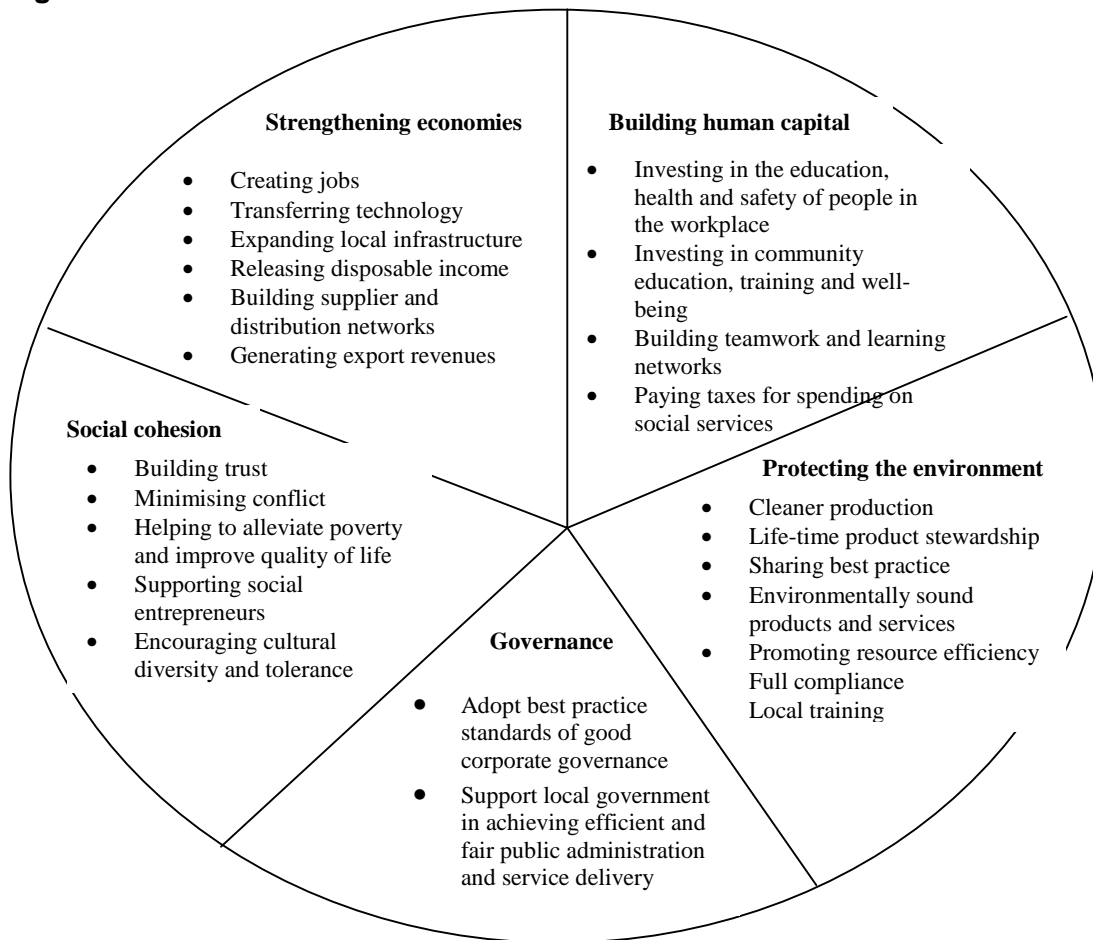
- recovering 55% packaging waste by 2001
- reducing landfill by 12% in England and Wales on 1998 levels by 2005
- reducing ammonia by 11% on 1990 levels by 2010.
- reducing CO₂ emissions by 20% relative to 1990 levels by 2010
- reducing volatile organic compounds (VOCs) by 53% on 1990 levels by 2010
- reducing nitrogen oxides by 56% on 1990 levels by 2010
- reducing sulphur dioxide by 83% on 1990 levels by 2010.

Effective sustainability management requires understanding an organisation's social, economic and environmental impact and formulating a coherent set of action plans to deliver continuous improvement in the key performance areas. Such plans need to be based on a sound business case. At the highest level this means ensuring a good fit between overall business strategy and the Sustainability Action Programme. At the operational level it is important to integrate sustainability plans into day-to-day business activities.

To implement a Sustainability Policy and the programme by which it is realised, it is important the organisation takes full ownership of the objectives. This is best achieved when the organisation itself devises

the policy. A policy is not likely to succeed if it is taken from another organisation and imposed. At present, for instance, different organisations use the words ‘sustainability’ and ‘environmental’ differently and sometimes interchangeably.

Figure 4



Case study: Sustainability policy, University of Edinburgh

In 1993 the University of Edinburgh was one of the first higher education sector institutions in the UK to publish a corporate environmental policy. Subsequently, the university has developed a complementary set of policies and plans relating to key areas of performance such as Energy, Waste Reduction, Health and Safety and Travel. Each of these policy headings now sit within a coherent management framework provided by an overall University Sustainability Policy, adopted by the University Court in June 2000.

Sustainability Policy 2000

The University of Edinburgh identifies sustainable development as development ‘meeting present needs without compromising the ability of future generations to meet their own needs’. Sustainability is a process of ensuring the wise use of all resources within a framework in which environmental, social and economic factors are integrated.

The university is committed to placing sustainability at the heart of its mission:

- making sustainability integral to the delivery of research, teaching and operational objectives
- taking positive actions promoting continual environmental improvement
- setting and achieving clearly defined sustainable development objectives and targets.

The university seeks to build on its Environmental Policy of 1993 and undertakes to:

1. Make sustainability a corporate priority by:

- encouraging students and staff to incorporate informed sustainability perspectives within their work
- developing the capacities of academic staff to promote understanding of the principles of sustainability.

2. Develop and deliver appropriate teaching and research by:

- exposing all students to concepts of social, ecological and ethical stewardship
- supporting and encouraging interdisciplinary research into issues of sustainable development.

3. Take a leadership role in sustainability by:

- setting best practice standards, meet or surpass requirements of environmental legislation and commit to a process of continual environmental improvement
- promoting awareness of all legislative, economic, technical and market developments that assist progress towards sustainability
- establishing an Advisory Group to oversee implementation of this policy and associated programmes.

4. Contribute to stable community building by:

- building partnerships and create local information and learning networks for sharing experiences and knowledge of sustainability issues with all stakeholders
- operating in ways that maximise social and economic benefit while minimising any adverse impacts to the local community
- investing in staff development, value stakeholder involvement and promote social inclusion and equity.

5. Maintain and develop the university in a sustainable manner by:

- promoting continual improvement in maintenance practices and establish sustainability guidelines for internal and external design teams and contractors working on new build and refurbishment projects
- developing procurement procedures with all elements of the supply chain to ensure social, ethical and environmental criteria are integrated into programmes aimed at achieving best value
- maximising the efficient use of energy and materials, continually improve pollution prevention measures and increase use of renewable resources
- minimising waste generation in research and teaching activity and encourage repair, reuse and recycling ahead of the responsible disposal of surplus materials
- promoting practical measures to reduce the impact of travel to and between university sites.

6. Monitor and report on progress towards sustainability by:

- managing responsibly the social, environmental and economic impacts of all university policies and practices and assess potential improvements within the university's decision-making processes
- conducting reviews of all university policies, management performance standards and operations against internal sustainability targets and best practice standards
- making the results of social, environmental and sustainability audits and impact assessments carried out by or for the university available to all stakeholders.

Case study: Environmental policy, Carillion Group

The Carillion Group is committed to:

- continuing environmental improvement, by implementing business-specific environmental management systems
- developing objectives, supported by detailed targets to manage all potentially significant environmental aspects
- preventing pollution and monitoring and reducing any adverse impact of the groups' operations on the environment and local community
- demonstrating efficiency in the use of energy, water and materials, as well as taking appropriate opportunities to minimise waste and re-use and recycle wherever possible
- developing meaningful performance indicators to measure resource use, waste and emissions as well as promoting environmental best practice
- complying with all relevant environmental legislation, other environmental regulations and standards of relevance to the industry sectors in which we operate
- training of staff, suppliers and contractors to enhance awareness of relevant environmental issues and ensuring effective management of our environmental impacts
- working in partnership with our suppliers to ensure effective environmental supply-chain management and to promote sustainable sourcing of products and materials
- seeking to influence the environmental impact of our final constructed product through enhancement of environmental specification and design
- working in partnership with our customers to promote the adoption of best practice environmental management techniques to deliver high-quality products and services
- establishing two-way dialogue with all who have an interest in our business, including staff, suppliers, customers, investors, shareholders, appropriate authorities, local communities and other organisations, to identify key environmental issues and to seek innovative solutions and appropriate alternatives
- publishing information on environmental performance, gaining third-party endorsement of published performance and benchmarking this performance against others.

Management of sustainability issues

Taking a systematic approach to the management of environmental and social as well as economic issues associated with an institution's teaching, research and estates practices is an essential requirement for a responsible organisation. Strategic environmental management helps senior HE managers understand and assess environmental risks and opportunities. On this basis they can make more informed decisions about facilities and processes.

An environmental management system (EMS) such as ISO 14001 or the EU Eco-Management & Audit Scheme (EMAS) is a systematic approach to dealing with the environmental aspects of an organisation or a project. It provides a framework for ensuring that action plans formulated to deliver good practice sustainability performance are effectively implemented. It is a 'tool' that enables an organisation of any size or type to control the impact of its activities, products or services on the natural environment.

1. Elements of an environmental management system

An EMS usually begins with Preparatory Environmental Review followed by an Environmental Policy. From this grows an action plan, including performance target to be attained. The performance is assessed and finally reviewed in line with the policy. This cyclic sequence of 'plan, action, measure and review' is characteristic of environmental management systems. It is, of course possible to join the cycle at any point, and some companies implement their EMS before a policy has been finalised.

2. Benefits of an environmental management system

An environmental management system is a tool and is only as effective as the people using it. Implementing an EMS brings different benefits to different players in the building management and construction process.

Estates managers may benefit most from:

- demonstrating to internal clients a commitment to environmental management
- meeting certification criteria and obtaining permits and authorisations
- obtaining insurance at lower cost
- helping control and avoid environmental impacts.

Internal clients, on the other hand, may benefit more from:

- satisfying funding criteria and improving access to grants
- enhancing stakeholder image
- demonstrating to construction service providers their commitment to environmental issues.

3. Disadvantages of an environmental management system

Like all management, environmental management systems take some time and resources to establish, run and review. Before introducing an environmental system be very sure that you have fully assessed the costs involved to balance against the benefits to be gained.

4. Case for certification

Whilst any responsible organisation is likely to require a formal system of some kind to manage its environmental impacts, not everyone needs a system which is independently audited in order to obtain third party certification. Where this is deemed necessary – in order to gain credibility in the eyes of others, for example – a system such as ISO 14001 or EMAS will need to be adopted. This process can add additional management costs.

Before deciding whether to seek formal certification for its systems, an organisation should be certain that it fully understands that certification cannot be used as a guarantee that their products or services are environmentally responsible – only that it has a certified environment management system in place.

Systems such as ISO 14001 were originally conceived to apply to companies whose operations have significant direct environmental impacts such as the potential to pollute. However, there is now growing recognition that they might have wider, indirect application. For example, when applied to firms such as architects, consulting engineers and quantity surveyors and contractors whose activities have significant indirect environmental impacts through the products they specify and install.

Case study: ISO 14001 certification, Morrison Construction

In 1999, Morrison Construction gained ISO 14001 certification, having recognised a number of internal and external drivers:

Internal:

- caring for the environment
- improving of the company's image
- desiring to be a market leader
- improving company performance
- achieving cost savings
- providing commercial opportunities.

External:

- legislation
- costs and taxation
- clients' requirements
- investors and insurers
- employees
- neighbours.

Morrison's environmental management system includes assessing the environmental impact of all projects undertaken. For example, estimators, planners and designers are required to adopt environmental checklists that included an assessment of each project with regard to indicators for water, nuisances, resource efficiency, etc. Environmental targets were set for these indicators based on legal compliance and best practice methods. The company reviews its achievements against these targets and produces regular company environmental reports.

Annual reporting

A sign of a responsible organisation is a willingness to report its performance to its stakeholders. Producing annual sustainability or environmental reports is now accepted as good business practice and may well be a requirement of any formal environmental management system which an institution operates.

To be effective and meaningful, annual reporting must be part of a communication strategy and involve benchmarking of performance against sector good practice standards. To this end sustainability indicators provide an important component of the process of measuring, managing and reporting performance.

Case study: Sustainability indicators, Scottish Homes

Scotland's National Housing Agency, Scottish Homes, commissioned a study designed to test the operational readiness of their sustainable development policy as an effective instrument for delivering sustainable development within the social housing sector in Scotland. A key outcome of the study have been the definition of a set of key sustainability performance indicators and associated targets.

Amongst the recommendations was the proposal that Scottish Homes should adopt a set of key performance indicators and targets for social housing. These would be applied across the agency's funded development programme and be translated into targets for each Registered Social Landlord (RSL) seeking funding.

Indicators and targets would allow for the measurement of the sustainability performance of each RSL organisation, its overall development programme and each individual project. Both indicators and targets should be reviewed on a regular basis, with a view to revising targets upwards in line with current best practice and as a means of driving continual improvement within the sector.

Each RSL in receipt of Scottish Homes funding should be required to produce and publish via the proposed sustainable housing network web site, an annual sustainability report providing an objective assessment of its development programme through the appropriate application of the Housing Quality Assessment Program. Such reporting correlates with the national sustainability indicators adopted by Scottish Homes with respect to their whole funding programme.

Environmental or sustainability reporting promotes dialogue with stakeholders, demonstrating to clients, lenders, investors, insurers, customers and the wider community within which it operates that an organisation is being well-run and is seeking to reduce risks and future liabilities.

Effective annual reporting is an opportunity to show that a company is not simply complying with regulations but is adopting a leadership role in seeking to improve performance continuously in anticipation of future

change – future-proofing. Environmental reporting can empower stakeholders with the information they need to hold organisations accountable by enabling environmental performance to be measured against statements of environmental principles and industry good practice.

Environmental and sustainability reporting should be for internal as well as external consumption, encouraging staff and students to apply good practice and serving as a driver for continuous improvement. As the following examples show, annual reports differ in their detail and emphasis as a reflection of an organisation's business sector and its own attitudes to sustainability and the environment.

Case study: Environmental report, Skanska

Skanska is one of the world's leading construction companies, employing nearly 40,000 people and operating in more than 50 countries. Its annual environmental report reviews its environmental performance in accordance with its environmental policy and EMS. This includes the activities of the many divisions with the firm, both in Sweden, the rest of Europe and the USA, many of which have now independently gained ISO14001 certification.

A number of articles also serve to educate readers (eg, employees and shareholders) about the environmental issues that the firm has been addressing, such as the environmental impact of construction processes and existing buildings, as well as how the firm applies its environmental philosophies to its own building stock.

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